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UNIVERSITY PUBLICATIONS

SEVENTY-FIFTH YEAR—NO. 2

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# THE NEW YORK STATE SCHOOL

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1910-1911

PUBLISHED BI-MONTHLY BY ALFRED UNIVERSITY  
MARCH, 1911

Entered January 25, 1902, as second-class matter, Post Office at Alfred, N. Y.,  
Under act of Congress of July 16, 1894





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THE NEW YORK STATE SCHOOL  
OF CLAY-WORKING AND CERAMICS



ALFRED, NEW YORK

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## Board of Managers

(Appointed annually by the Trustees of Alfred University)

BOOTHE C. DAVIS, *President*

JOHN J. MERRILL

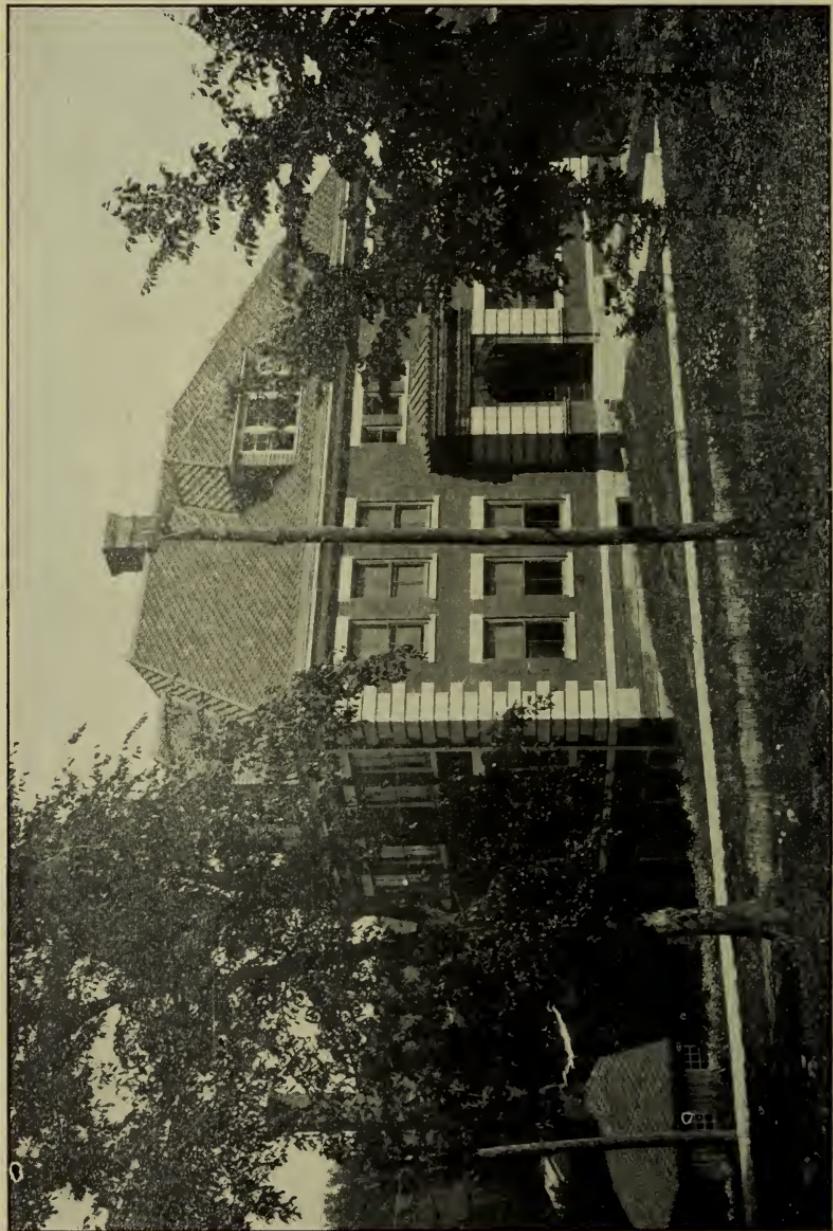
WILL R. CLARKE

ELWOOD E. HAMILTON

LYLE BENNEHOFF



The New York State School of Clay-Working and Ceramics



# Calendar

## FIRST SEMESTER, 1910-1911

		1910
Registration, Entrance Examinations	Tuesday	Sept. 13
Instruction begins	Wednesday	Sept. 14
<b>Election Day</b>	<b>Tuesday</b>	<b>Nov. 8</b>
Thanksgiving recess begins	Tuesday evening	Nov. 22
THANKSGIVING RECESS		
Instruction resumed	Tuesday morning	Nov. 29
Holiday Recess begins	Wednesday evening	Dec. 21
HOLIDAY RECESS		
		1911
Instruction resumed	Wednesday morning	Jan. 4
Semester Examinations begin	Monday	Jan. 23
Examinations end, Semester ends	Friday	Jan. 27

## SECOND SEMESTER, 1910-1911

Instruction begins	Tuesday morning	Jan. 31
<b>Washington's Birthday</b>	<b>Wednesday</b>	<b>Feb. 22</b>
Spring Recess begins	Wednesday evening	Apr. 12
SPRING RECESS		
Instruction resumed	Wednesday morning	Apr. 19
Examinations begin	Friday	May 26
<b>Memorial Day</b>	<b>Tuesday</b>	<b>May 30</b>
Examinations end	Monday	June 5
Degrees conferred at University Commencement	Thursday	June 8

## SUMMER VACATION

## FIRST SEMESTER, 1911-1912

		1911
Registration, Entrance Examinations	Tuesday	Sept. 19
Instruction begins	Wednesday	Sept. 20
<b>Election Day</b>	<b>Tuesday</b>	<b>Nov. 7</b>
Thanksgiving recess begins	Tuesday evening	Nov. 28
THANKSGIVING RECESS		
Instruction resumed	Tuesday morning	Dec. 5
Holiday Recess begins	Wednesday evening	Dec. 20
HOLIDAY RECESS		
		1912
Instruction resumed	Wednesday morning	Jan. 3
Semester Examinations begin	Monday	Jan. 29
Examinations end, Semester ends	Friday	Feb. 2

## SECOND SEMESTER, 1911-1912

Instruction begins	Tuesday morning	Feb. 6
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# Faculty

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CHARLES F. BINNS, Sc. M., Director,  
Professor of Ceramic Technology.

ALPHEUS B. KENYON, Sc. D., Registrar,  
Professor of Mathematics.

PAUL E. TITSWORTH, Ph. B.,  
Professor of Modern Languages.

WAYLAND D. WILCOX, Ph. B.,  
Professor of English.

JAMES D. BENNEHOFF, Sc. M.,  
Professor of Natural Science.

LINTON B. CRANDALL, Sc. B.,  
Professor of Industrial Mechanics.

M. ELSIE BINNS,  
Instructor in Art.

HERBERT K. CUMMINGS, Sc. B.,  
Instructor in Chemistry and Physics, and Assistant  
to the Director.

DYER B. LAKE, Sc. M.,  
Instructor in Chemistry.

A. L. WHITFORD,  
Janitor and Machinist.

## New York State School of Clay-Working and Ceramics

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In the field of applied science and commercial engineering the subject of Clay-working is becoming daily more important. To the architect and builder clay offers the most satisfactory fire-proof material, to the housewife pottery is indispensable and to the artist clay and clay-wares afford at once a facile means of expression and a prominent feature of home decoration.

The problems which confront the clay-worker are unique. He must learn to win his material economically from the earth, to shape his wares with due regard to both utility and art, to glaze or otherwise finish them in a satisfactory manner and to burn the whole successfully upon a large scale. His education must therefore be comprehensive and complete. He must, in a word, be a specialist, and to this end the New York State School was established.

Chapter 383, Laws of New York State, 1900, provided for the construction and maintenance of the school, and in order to secure the necessary facilities for collateral branches of study Alfred University was chosen as the location.

For this work the University offers great advantages. Laboratories of chemistry and physics, libraries, museums of geology and natural history, workshops for manual training, and all the departments of general culture are available, so that the many and varied requirements of a liberal education are fully met.

The State of New York contains vast deposits of clays and shales at present lying dormant. It also contains large numbers of young men and women who are seeking profitable employment. The work of the school is to bring these together. Neither the science nor the art is neglected. Attention is given to the improvement of methods of manufacture and the reduction of cost so that the resources of the state may be fully developed and that within its borders may be manufactured the clay-wares, both coarse and fine, necessary for its own consumption.

## Building and Equipment

The building of the New York State School of Clay-Working and Ceramics has been especially designed for the purposes of the school, and is located on land which was deeded by Alfred University to the people of the State of New York. It is built of red brick and terra-cotta with gray trimmings and roofed with brown tile. It has a floor space of about thirteen thousand square feet, and a frontage of seventy-five feet.

In the lower story are located the heavy machinery for the manufacture of brick, tile, hollow blocks and roofing tile, the slip making plant, cylinders for glaze preparation, and a workshop fitted with modern appliances for pottery and porcelain manufacture. There are also rooms for mold making and drying, and a damp cellar.

The motive power is supplied by a 36 horse power Otto gas engine, and a 6 horse power Fairbanks gas engine, natural gas being available.

On the principal floor are located the executive offices, rooms for director, laboratories, and a technical library.

The technical laboratories contain the following apparatus and appliances: small blungers for samples, ball mills for grinding, a Case crusher, a power blower, four gas furnaces, an air brush, an electric furnace, dy-

namo for the same, cement testing machine, gas analysis apparatus, rotating shaker, elutriation apparatus, draft meter, pyrometers, vacuum air pump, apparatus for expansion measurements, polarizing microscope, scales and balances.

The recitation room on the third floor is equipped with a stereopticon and contains numerous examples of ceramic wares, both ancient and modern.

The art department of the school is placed on the second floor. Studios are arranged, provided with the facilities necessary for the practice of mechanical drawing, free-hand drawing and applied design. Adjoining these is the modeling room where, in addition to ornamental work in clay, the production of pure form is studied.

Adjacent to the main building is the kiln house, within which are two kilns; one for firing common wares at a low temperature, the other for high temperature work.

### Courses Offered

The courses of study which lead to a degree extend over a period of four years and embrace, together with the science, technology and art special to clay-working, such subjects as are the equivalent of the usual college course. Certain subjects are required, but the ceramic work is elective as to the particular branch of clay working to be followed.

The technical course is designed to qualify men to occupy positions as superintendents, scientific experts and ceramic chemists.

The course in ceramic art is intended to fit the student for the designing and producing of artistic pottery. The course covers a wide field of art and letters in the belief that a successful artist must possess a liberal education.

For the accommodation of those desiring to qualify as teachers it is permitted to elect psychology, history of education and pedagogy in place of other college subjects. An opportunity for practice teaching is afforded in the public schools of Alfred.

Students having a practical knowledge of clay working will be received for short terms, and certificates will be given according to the work done.

### Benefits of the School

The demand for trained clay-workers has grown to considerable proportions during the last few years. Capital is becoming more and more interested in the development of clay lands and shale banks; nor is there any likelihood that this interest will decrease.

On the other hand the number of men who have studied in schools is very small compared with the openings to be filled. Hitherto, no student who has passed through the school successfully has remained unemployed, and the director is continually in receipt of applications for persons qualified to fill responsible positions. Every effort is made by the faculty to place the students in communication with manufacturers desiring to offer them employment.

The student successfully pursuing the technical course will be able, presuming that his personal capacity is good, to take up the practical work of manufacturing clay wares. He will have had experience with every description of clay, and with the minerals and oxides used in preparing bodies and glazes. He will have acquired a knowledge of machinery and kilns which he will find of the greatest value; in short, he will be a trained man as regards the problems of clay-working.

Students who conscientiously pursue the course in ceramic art will be able to design and make artistic

pottery, preparing their own clays and compounding their own glazes, if necessary. Those who elect normal studies will be thoroughly equipped to teach not only clay-working, but drawing and design in schools.

## Physical Training

The aim of the work in physical training is to bring the whole body to its normal condition, to acquire ease and precision in movement, and to develop the health and strength of the student.

There are two gymanasiums in the university. The women have a large, well ventilated room on the third floor of the Ladies Hall, equipped with apparatus for light gymnastics. The gymanasium for men is on the lower floor of Babcock Hall. It is equipped with chest weights, dumb bells, wands, Indian clubs, horizontal and parallel bars, rings, poles, and floor mats. A dressing-room with individual lockers, a well equipped bath room with shower baths, and two handball courts are provided. The gymanasiums are in charge of the physical director. All students, unless excused by the instructor on the advice of a physician, are required to do two semester hours of work during the freshman year, under the direction of the instructor in physical training.

The university athletic field embraces over three acres of level land. All intercollegiate contests in football, baseball, and track athletics are held on this field. The field affords a running track (one-sixth of a mile). Appropriate apparatus for field sports is provided.

Outdoor sports are in the immediate charge of the athletic association, which has a football team playing under intercollegiate rules, a baseball nine, and a basketball team. The tennis club, which is provided with excellent courts, maintains an annual tournament. Athletics, however, are not carried to extremes. The committee on

athletics from the faculty, and the graduate manager, exercise general supervision, for it is the purpose of the school to give due attention to the physical welfare of its students, and at the same time keep the physical development in proper relation to intellectual and moral development.

## Registration

All the students will register at the office of the University on the first day of the college year; and students entering at the beginning of the second semester will register on the first day thereof. Any student not registering on the day set therefor will be charged a fee of two dollars for late registration.

## Fees per Semester

Students residents of the State of New York for one year preceding the date of their admission are entitled to free tuition.

TUITION AND INCIDENTAL FEE (Except to residents of New York State)	- - - - -	\$25 00
READING ROOM FEE	- - - - -	30
EXTRAS, for use of instruments and laboratory materials:		
Gymnasium fee ( all Freshmen and others taking instruction)	- - - - -	1 00
Surveying	- - - - -	4 00
Elementary Chemistry	- - - - -	4 00
Blowpipe Analysis and Mineralogy	- - - - -	4 00
Quantitative Analysis	- - - - -	6 00
Qualitative Analysis	- - - - -	7 50
Organic Chemistry	- - - - -	5 00
Physics, Laboratory	- - - - -	5 00
Botany or Zoology	- - - - -	4 00
Entomology	- - - - -	2 00
Physiology	- - - - -	1 00
Shop Fee	- - - - -	4 00
GRADUATION FEE	- - - - -	5 00

Special students, not residents of the state, taking fewer than eight exercises per week will be charged three dollars for each semester hour.

Bills will be presented soon after the beginning of each semester and must be paid at the office of the treasurer before the third Friday of the semester.

### Rooms and Board

Rooms and board for women can be had at Ladies Hall, and rooms for men at Burdick Hall, at the following rates:

Rooms, furnished, per semester	-	-	\$10 00 to \$24 00
Board, per week	-	-	3 50

All rooms are fitted with gas fixtures for heating and lighting. Gas is paid for according to amount used at 32c per thousand.

Board is furnished to men at Burdick Hall on the co-operative plan.

Rooms and board, including fuel can be obtained in private families at from \$3.00 to \$5.00 per week. Board in clubs, organized and managed by the students themselves, varies from \$2.50 to \$3.50 per week, according to the means and inclinations of the members.

### Estimated Annual Expenses

Excluding cost of clothing and travel, one can go through a college year by close economy upon \$175; and by exercising care, upon \$200. An allowance of \$250 is comfortable, and \$300 is liberal.

Board, \$2 50 to \$3 50 per week	-	-	\$80 00 to \$130 00
Rooms, \$10 00 to \$24 00 per semester	-	-	20 00 to 48 00
Gas, \$3 00 to \$6 00 per year	-	-	3 00 to 6 00
Laundry, per year	-	-	10 00 to 15 00
Books	-	-	10 00 to 25 00
Lyceum taxes, etc.	-	-	2 00 to 10 00
Incidentals, and extras	-	-	25 00 to 35 00
<hr/>			
Total for year	-	-	\$150 00 to \$269 00

## Self-Support

Many of the graduates of the school have been persons of very limited means who worked their way through college. While work cannot be guaranteed to all applicants, enterprising students can usually find employment in the town with satisfactory compensation for all the time they can profitably spare from their studies. Some earn enough to meet the greater part of their expenses. Students should distinctly understand that when they attempt entire self-support they should lengthen their term of study.

## Terms and Vacations

The school year consists of two terms, or semesters, of about eighteen weeks each. There is a recess at Thanksgiving, extending from Tuesday evening until Tuesday morning following; a vacation at the Holidays of about two weeks; a short recess at Easter time; and a summer vacation of about fifteen weeks.

## Class Exercises

The class exercise period is one hour in length; in laboratory work, however, the class exercise continues through two or more hours, as the case may be. There are no class exercises on Saturday or Sunday. The schedule of recitation is fixed by the faculty. Each student is expected to have at least fifteen exercises per week. Students who take more than seventeen exercises weekly must maintain an average standing of ninety per cent and obtain the consent of the director. Any student who fails to attain a standing of at least seventy-five per cent in a given subject will not receive credit in that subject.

No student will be permitted to remain in the school unless he has received credit for ten hours of work in the preceding semester.

## Unit or Measure of Credit

One class exercise per week for one term or semester, is taken as the unit or measure of credit, and is termed a semester hour. In each course one hundred and twenty semester hours are required.

## Absences and Excuses

It is expected that no student will be absent from any college exercise except in case of necessity. Excuses for absence from class exercises are made to a committee of the faculty known as the committee on absences. All excuses are granted with the understanding that the work missed will be made up to the satisfaction of the instructor. Each unexcused absence deducts one per cent from the final standing for the semester, or two per cent if occurring within three days immediately preceding or following a recess or vacation.

## Examinations

Final examinations are held at the close of each semester in addition to occasional written tests during the semester. Fees will be charged for all examinations taken by those not regular members of classes, or at other times than those appointed for the class examinations.

# Admission

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Candidates for admission to the freshman class must be at least fifteen years of age and must present certificates of good moral character. The particular requirements for entrance are explained below. Preparatory work may be estimated either in "units" or in New York State regents "counts." The "unit" represents a course of five recitations weekly throughout an academic year of the preparatory school. The regents "count" represents one recitation weekly for one year. Fifteen "units" or seventy-five "counts" must be offered.

## Entrance Requirements

### [a] To the Technical Course

ENGLISH. 3 units or 15 counts. The candidate must be familiar with elementary rhetoric, both as a science and an art, and must be proficient in spelling, punctuation, idiom and division into paragraphs. Preparation must include the work in English prescribed by the various college associations.

Each student must be able to pass an examination upon ten books selected from the list prescribed by the college entrance associations. The following ten are recommended: Shakespeare's Julius Cæsar, and The Merchant of Venice; The Sir Roger de Coverly Papers; Goldsmith's The Deserted Village; Scott's Ivanhoe; Hawthorne's The house of the Seven Gables; Irving's Sketch Book; Ruskin's Sesame and Lilies; Lowell's The Vision of Sir Launfal; Longfellow's Courtship of Miles Standish.

In addition to the above a thorough study of each of the works named below is required. The examination will be upon subject matter, form and structure.

Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso and Comus; or Tennyson's Idylls of the King; Burke's Speech on Conciliation with America, or Washington's Farewell Address and Webster's Bunker Hill Oration; Macaulay's Life of Johnson, or Carlyle's Essay on Burns.

**MATHEMATICS.** 3 units or 15 counts, viz; Elementary Algebra including fundamental operations, factoring, fractions, ratio, proportion, radicals, quadratics. Plane Geometry, including the straight line, angle, circle, proportion, similarity, and areas. Solid Geometry and Plane Trigonometry.

**FOREIGN LANGUAGES.** 2 units or 10 counts. Any one language may be offered.

The candidate will be expected to have a practical knowledge of pronunciation, as well as a thorough mastery of grammatical forms and syntax, and to possess a familiarity with the literature in proportion to the amount of work offered.

**DRAWING.** 1 unit or 5 counts. A year's course in Drawing.

**SCIENCE.** 3 units or 15 counts. Chemistry and any two of the following: Biology, Physical Geography, Physics,

**ELECTIVE.** 3 units or 15 counts.

#### SUMMARY

English	3	units	or	15	counts
Mathematics	3	"	"	15	"
Foreign Language	2	"	"	10	"
Drawing	1	"	"	5	"
Science (including chemistry)	3	"	"	15	"
Elective	3	"	"	15	"
Total	15	"	"	75	"

[b] To the Art Course

For entrance to the course in ceramic art and normal study the requirements are those admitting to either of the courses in Alfred University.

NOTE—Candidates for admission to any of the above courses, may, in exceptional cases, offer equivalents as substitutes for the required studies subject to the approval of the director.

Admission is gained either on certificate or on examination, as follows:

### Admission on Certificate

**REGENTS' CREDENTIALS.** The credentials of the University of the State of New York are accepted instead of an examination in the subjects required for admission, so far as they cover these requirements. [For description of subjects, see *Entrance Requirements*.]

**PRINCIPAL'S CERTIFICATE.** Certificates are also received from principals of preparatory or high schools outside of New York State, provided such schools are known to the faculty for thoroughness of instruction. Such certificate must specify, in connection with each subject, the extent to which it has been pursued, by giving the text-book used, the method of instruction, the amount of time given to it, the date of the final examination, the degree of the applicant's proficiency, and must clearly show that the student has met the requirements in every detail. The school furnishes blank forms for such certificates upon application of principals of approved schools.

Principals of preparatory schools who desire to have their students admitted on certificate are invited to correspond with the director.

## Admission on Examination

Candidates who fail to present satisfactory certificates must pass a written examination in the required subjects. Examinations in all subjects required for admission are held at Alfred at the beginning of the year. Candidates must report at the director's office and obtain permits for examination. The result of the examination may be obtained from the director.

## Conditioned Students

Under the provisions of section 59 of the ordinances of the University of the State of New York no student can enter the freshman class conditioned in more than three academic subjects. These conditions must be removed within one year. The text of the ordinance is as follows:

“§59 Degree Preliminaries. No degree shall be conferred on students matriculating after Jan. 1, 1905, for completion of a course of study or on examination, unless the candidate has as a preliminary general education at least a four-year high school course or its full equivalent as determined by the University rules. Satisfactory evidence of such preliminary education must be offered before beginning the course of study for the degree, and any condition for deficiency (which must not exceed three academic subjects) must be made up within one year.”

## Admission to Advanced Standing

Students from other schools, having a course equivalent to that of the New York State School, may enter at the point from which they take dismissal, upon presentation of satisfactory certificates of standing and character, including an honorable dismissal.

## Senior Thesis

There is required of each candidate for a degree a thesis, for which credit is given, two hours in the first semester and three in the second semester of the Senior year. The title of the thesis must be chosen in the field of Ceramics not later than November 1, and must be approved by the director. The thesis shall embody the results of actual independent research, and must be submitted for approval not later than May 1. A type-written copy must be deposited with the director.

## Graduation

While no student will be permitted to graduate with a smaller credit than one hundred and twenty semester hours, four full years of resident work will be required in either course. Upon students who satisfactorily complete the technical course Alfred University will confer the degree of Bachelor of Science, and upon students who satisfactorily complete the course in Ceramic Art the degree of Bachelor of Philosophy in Ceramics.

# Courses of Study

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The studies in the Freshman and Sophomore years are required. Those of the Junior and Senior years are elective in part, but every student is expected to cover as far as possible the subjects indicated.

## Required Studies

Arabic numerals indicate the number of class exercises per week.

### Freshman Year

TECHNICAL COURSE	ART COURSE
English 3	English 3
Foreign Language 3	Foreign Language 3
Chemistry (3) 3	Chemistry (1) 3
Mathematics 3	Mathematics 3
Laboratory 1	Design 1
Woodshop 1	Drawing 1
Physical Training 1	Modeling 1
	Physical Training 1
15	16

### Sophomore Year

TECHNICAL COURSE	ART COURSE
English 2	English 2
Mathematics 3	Foreign Language 3
Chemistry 3	Logic and Psychology 2
Physics 3	Philosophy 2
Ceramic Theory 3	Ceramic Theory 3
Machine Shop 1½	Design 1
Laboratory 1½	Drawing 1½
	Modeling 1
	Laboratory 1½
17	17

Students in the technical course will take ceramic technology as major subject and will elect as minor, chemistry, mathematics or foreign language.

Students in the art course will take ceramic art as major, and will elect as minor, history, philosophy, natural science or mathematics.

The following subjects should be pursued as far as possible in the Junior and Senior years, enough work being elected to complete at least one hundred and twenty semester hours.

TECHNICAL COURSE

Chemistry 2	
"    4	
"    6	
"    7	
"    8	
Physics 2	
Geology (1)	
Economic Geology (3)	
German	
Graphics	
Mathematics (6)	
"    (7)	

ART COURSE

Biology (1)	
"    (2)	
Chemistry 3	
History (1)	
"    (2)	
"    (3)	
Education (4)	
"    (5)	
History of Art	
Design	
Drawing	
Modeling	

The numbers in parenthesis refer to the courses described in the college catalogue of Alfred University to which reference should be made.

# Departments of Instruction

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## Technology

Professor Binns

1. A course of lectures, with recitations, on the principles of calculation involved in ceramic composition. First semester. Sophomore year, *three hours*.
2. A course of lectures, with recitations and notes, on the methods of manufacture of clay wares, ancient and modern. Second semester. Sophomore year, *three hours*.
3. A course of lectures, with recitations and notes, on the mineralogy of clay. Junior year, *two hours*.
4. A course of lectures, with recitations, on the technology of clay wares for special purposes. White wares, faience, earthenware, sanitary ware, once fired ware, fireproof and refractory ware, hard and soft porcelain, electrical insulating ware. Senior year, *two hours*.
5. A course of laboratory demonstration and practice. Methods of manufacture. Elementary kiln work. Sophomore year, *one and one-half hours*.
6. A course of laboratory demonstration and practice. Mixing clay bodies and glazes. Chemical and mineral analysis of clays. Junior year, *two hours*.
7. Laboratory and workshop practice in continuation of course 6. Production of fine and special wares. Kiln construction and pyrometry. Senior year, *four hours*.

Students in the short course will be admitted to any of the foregoing lectures and laboratory work at the discretion of the faculty.

## Chemistry

Mr. Lake

Mr. Cummings

1. GENERAL CHEMISTRY. For beginners. Two recitations or lectures a week and one two hour laboratory period. *Three hours.*

2. ADVANCED INORGANIC CHEMISTRY. This course takes up a more detailed consideration of inorganic chemistry than course 1, and is planned to teach the student the modern theories and the methods of stoichiometrical calculation. Prerequisite, course 1 or its equivalent. *Two hours.*

3. QUALITATIVE ANALYSIS The detailed separation of the metals, non-metals, and acid radicals. A laboratory course consisting of six hours of laboratory work a week throughout the year, with an occasional lecture. Required of major students. Prerequisite, course 1 or its equivalent. *Three hours.*

4. ELEMENTARY QUANTITATIVE ANALYSIS. A course of six hours laboratory work a week for the first twelve weeks of the first semester. Gravimetric methods leading up to the analysis of silicate rocks. Prerequisite, courses 1 and 3. *Two hours. I.*

5. ORGANIC CHEMISTRY. Not required. (See College Catalog.)

6. TECHNICAL ANALYSIS: CLAYS AND MINERALS. The detailed analysis of clays and like bodies will occupy six hours weekly during the last six weeks of the first semester, following course 4. *One hour. I.*

7. TECHNICAL ANALYSIS: FUEL AND GAS. Comparative study of fuels together with the conditions and products of combustion. Four hours, laboratory work supplemented by lectures. Prerequisites, courses 1, 3 and 6. *Three hours. II.*

8. PHYSICAL CHEMISTRY. Introduction to the concepts of modern physical chemistry. Solutions, chemical equilibrium, the phase rule, chemical kinetics, etc. Much assigned reading is covered and original problems solved. Prerequisites, courses 1, 2 and 3. Recitations and lectures. *Two hours.*

## Physics

Mr. Cummings

1. GENERAL PHYSICS. A course in general physics for those who have had high school physics. The student should have studied trigonometry, college algebra, and preferably analytic geometry. Lectures and recitations with class-room demonstration, written exercises, and constant drill in solving problems. *Three hours.*

(a) MECHANICS AND HEAT. The work of the first semester is grouped about these two subjects, sound being considered in connection with the discussion of wave-motion. Especial importance is attached to the concepts of force, work and energy.

(b) LIGHT AND ELECTRICITY. The second semester is largely devoted to the principles of electricity and magnetism with some of their most important practical applications.

2. PHYSICAL MEASUREMENTS. Laboratory course with one recitation, two two-hour laboratory periods and a written report each week. Open to those who have taken or are taking course 1. *Three hours.*

(a) PROPERTIES OF MATTER. The experiments are designed to cover the same ground as course 1a.

(b) ELECTRICITY AND MAGNETISM. Continuation of the above during the second semester, or :—

(c) CALORIMETRY AND PYROMETRY.

## Graphics.

Professor Crandall

1. ELEMENTARY DRAFTING. A general course in mechanical drawing, including geometrical drawing and orthographic projection. *Two hours, counting one and one-half hours.*

2. DESCRIPTIVE GEOMETRY. A mathematical course in orthographic projection, intersection and development of geometrical surfaces, shades and shadows, and linear perspective. *Two hours.*

3. WORKING DRAWINGS. The making of plans, elevations, sections, and details of either buildings or machinery as the student may elect, under the approval of the professor. *Two hours, counting one and one-half hours.*

4. WORKING DRAWINGS. To continue 3, or special work as the student may elect, under the approval of the professor. *Two hours, counting one and one-half hours.*

## Ceramic Art

Miss Binns

This course is intended to give the student an appreciation of the principles underlying all art expression, especially through the crafts and pottery in particular. For this purpose courses are given in the History of Art and of ornament, as well as in the study of nature, the possibilities and limitations of materials and principles of true decoration. The course is planned to extend progressively over the four years.

The following outlines the course :

DRAWING, in charcoal or pencil from casts, nature or life. Plant growth and form.

MODELING, in clay from casts, nature and life, with experience in casting in plaster.

POTTERY BUILDING, including the designing and producing of pottery forms by the process of building; decoration and the methods used.

DESIGN. Study of the principles of design, the possibilities and limitations of decorations as applied to the crafts, consideration of all-over patterns and space filling. Adaptation of plant form. Color. Historic ornament.

NORMAL TRAINING. Drawing, design and clay-work as applied in public schools, with opportunity for practice teaching.

HISTORY OF ART. A course of lectures on the History of Art from earliest periods down to the present day.

For detailed information as to the courses in Mathematics, Modern Languages, English and Natural Sciences see the College Catalogue of Alfred University.

# Department of Investigation and Research

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## Clay Testing

Professor Binns

Mr. Cummings

The State School of Ceramics is fitted and the experts in charge are qualified, for the professional examination and testing of clays for economic purposes. Such clays may be classified under the following heads :

- (a) Kaolin, white burning residual clay.
- (b) Kaolin, white burning, washed for market, used in the manufacture of pottery, porcelain and paper.
- (c) Ball clay, white or cream burning, sedimentary clay of high plasticity, used in pottery manufacture.
- (d) Stone ware clay, gray or cream burning, more or less sandy in character, used in stone ware manufacture.
- (e) Fire clay, buff or white burning, refractory, used for manufacture of fire brick.
- (f) Brick clay, including colored clays and shales, used for the manufacture of brick and tile of various qualities and descriptions.

For each of the above classes special tests are necessary, and the charges made are proportionate to the work required.

A report upon each sample will be furnished and must be understood to refer only to the samples submitted unless the experts are instructed to examine the deposit and prepare their own samples, in which case special charges will be made. The report includes physical tests, and chemical analysis where necessary.

Advice as to washing or other preparation of the clay is also given, together with an opinion as to the industry to which the material may be applied.

## Industrial Problems

Professor Binns

The problems incidental to the manufacture of clay wares are regularly investigated at the school. Manufacturers are invited to present questions for study. Persons resident within the state are entitled to reasonable services without charge.

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Alfred Sun Press







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1912-13

UNIVERSITY PUBLICATIONS

SEVENTY-SEVENTH YEAR—No. 2

THE NEW YORK STATE SCHOOL  
OF CLAY-WORKING AND CERAMICS



ALFRED, NEW YORK

1912-1913

PUBLISHED BI-MONTHLY BY ALFRED UNIVERSITY  
MARCH, 1913

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Under Act of Congress of July 16, 1894.

## Board of Managers

(Appointed annually by the Trustees of Alfred University)

BOOTHE C. DAVIS, *President*

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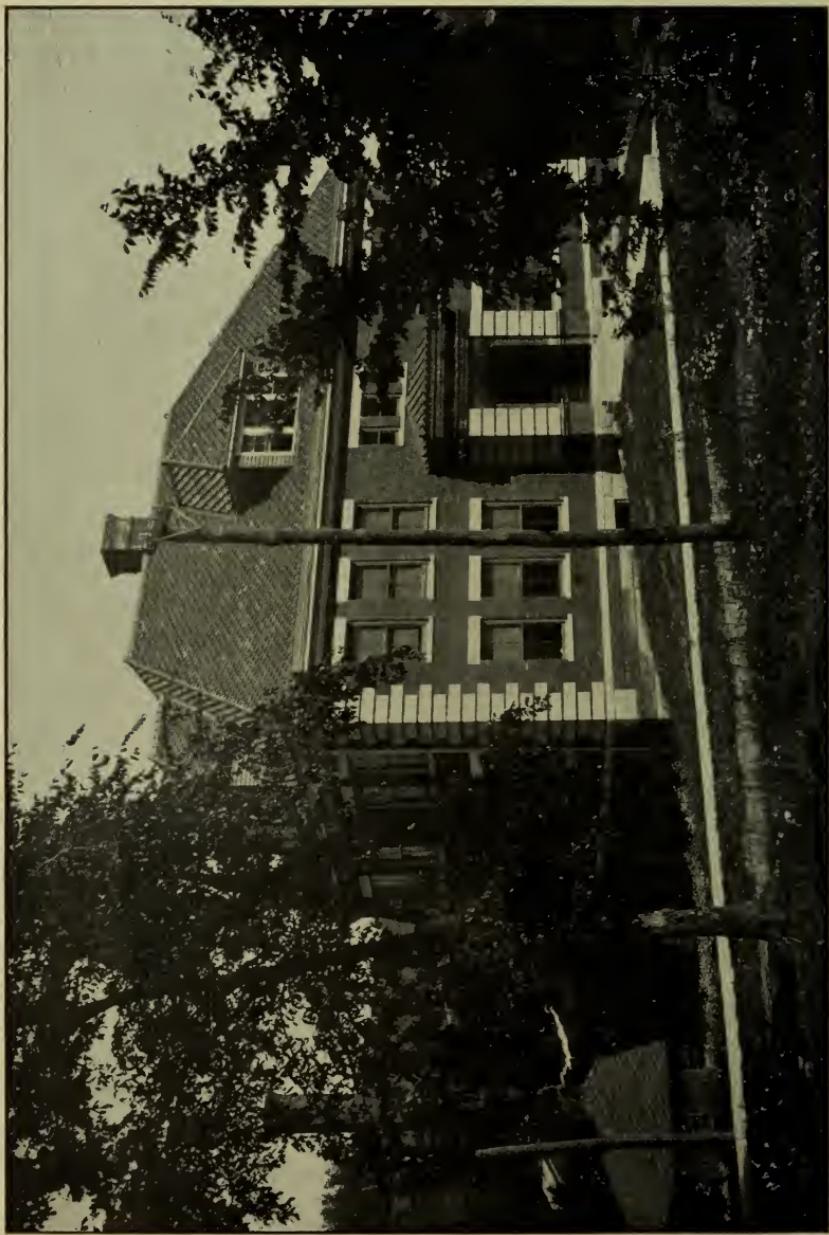
WILL R. CLARKE

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D. S. BURDICK



New York State School of Clay-Working and Ceramics



# Calendar

## FIRST SEMESTER, 1912-1913

		1912
Registration, Entrance Examinations	Tuesday	Sept. 17
Instruction begins	Wednesday	Sept. 18
<b>Election Day</b>	<b>Tuesday</b>	<b>Nov. 5</b>
<b>Thanksgiving Day</b>	<b>Thursday</b>	<b>Nov. 28</b>
Holiday Recess begins	Wednesday evening	Dec. 18

### HOLIDAY RECESS

		1913
Instruction resumed	Wednesday morning	Jan. 1
Semester Examinations begin	Monday	Jan. 27
Examinations end, Semester ends	Friday	Jan. 30

## SECOND SEMESTER, 1912-1913

Instruction begins	Tuesday morning	Feb. 4
<b>Washington's Birthday</b>	<b>Saturday</b>	<b>Feb. 22</b>
Spring Recess begins	Thursday evening	Mar. 20

### SPRING RECESS

Instruction resumed	Tuesday morning	April 1
Examinations begin	Friday	May 23
<b>Memorial Day</b>	<b>Friday</b>	<b>May 30</b>
Examinations end	Monday	June 2
Degrees conferred at University Commencement	Thursday	June 5

## FIRST SEMESTER, 1913-1914

		1913
Registration, Entrance Examinations	Wednesday	Sept. 17
Instruction begins	Thursday	Sept. 18
<b>Election Day</b>	<b>Tuesday</b>	<b>Nov. 4</b>
<b>Thanksgiving Day</b>	<b>Thursday</b>	<b>Nov. 27</b>
RECESS	Friday	Nov. 28
Holiday Recess begins	Tuesday evening	Dec. 23

### HOLIDAY RECESS

		1914
Instruction resumed	Tuesday morning	Jan. 6
Semester Examinations begin	Monday	Jan. 26
Examinations end, Semester ends	Friday	Jan. 30

## SECOND SEMESTER, 1914

Instruction begins	Tuesday	Feb. 3
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# Faculty

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BOOTHE COLWELL DAVIS, A. M., Ph. D., D. D., President,  
Professor of Ethics.

CHARLES F. BINNS, Sc. M., Director,  
Professor of Ceramic Technology.

ALPHEUS B. KENYON, Sc. D., Registrar,  
Professor of Mathematics.

PAUL E. TITSWORTH, Ph. D.,  
Professor of Modern Languages.

JAMES D. BENNEHOFF, Sc. M.,  
Professor of Natural Science.

LINTON B. CRANDALL, Sc. B.,  
Professor of Industrial Mechanics.

GEORGE ADDISON BOLE, A. M.,  
Associate Professor of Chemistry.

MYRTA A. LITTLE, A. M.,  
Associate Professor of English.

M. ELSIE BINNS,  
Instructor in Modeling and Pottery.

CLARA C. GREENWOOD,  
Instructor in Drawing and Design.

A. R. HEUBACH,  
Instructor in Ceramic Practice.

A. L. WHITFORD,  
Janitor and Machinist.

# New York State School of Clay-Working and Ceramics

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In the field of applied science and commercial engineering the subject of Clay-working is becoming daily more important. To the architect and builder clay offers the most satisfactory fire-proof material, to the housewife pottery is indispensable and to the artist clay and clay-wares afford at once a facile means of expression and a prominent feature of home decoration.

The problems which confront the clay-worker are unique. He must learn to win his material economically from the earth, to shape his wares with due regard to both utility and art, to glaze or otherwise finish them in a satisfactory manner and to burn the whole successfully upon a large scale. His education must therefore be comprehensive and complete. He must, in a word, be a specialist, and to this end the New York State School was established.

Chapter 383, Laws of New York State, 1900, provided for the construction and maintenance of the school, and in order to secure the necessary facilities for collateral branches of study Alfred University was chosen as the location.

For this work the University offers great advantages. Laboratories of chemistry and physics, libraries, museums of geology and natural history, workshops for manual training, and all the departments of general culture are available, so that the many and varied requirements of a liberal education are fully met.

The State of New York contains vast deposits of clays and shales at present lying dormant. It also contains large numbers of young men and women who are seeking profitable employment. The work of the school is to bring these together. Neither the science nor the art is neglected. Attention is given to the improvement of methods of manufacture and the reduction of cost so that the resources of the state may be fully developed and that within its borders may be manufactured the clay-wares, both coarse and fine, necessary for its own consumption.

## Building and Equipment

The building of the New York State School of Clay-Working and Ceramics has been especially designed for the purposes of the school, and is located on land which was deeded by Alfred University to the people of the State of New York. It is built of red brick and terra-cotta with gray trimmings and roofed with brown tile. It has a floor space of about thirteen thousand square feet, and a frontage of seventy-five feet.

In the lower story are located the heavy machinery for the manufacture of brick, tile, hollow blocks and roofing tile, the slip-making plant, cylinders for glaze preparation, and a workshop fitted with modern appliances for pottery and porcelain manufacture. There are also rooms for mold making and drying, and a damp cellar.

The motive power is supplied by a 36 horse power Otto gas engine, and a 6 horse power Fairbanks gas engine, natural gas being available.

On the principal floor are located the executive offices, rooms for director, laboratories, and a technical library.

The technical laboratories contain all the apparatus and appliances necessary for testing clays and preparing ceramic mixtures.

The recitation room on the third floor is equipped with a stereopticon and contains numerous examples of ceramic wares, both ancient and modern.

The art department of the school is placed on the second floor. Studios are arranged, provided with the facilities necessary for the practice of mechanical drawing, free-hand drawing and applied design. Adjoining these is the modeling room where, in addition to ornamental work in clay, the production of pure form is studied.

Adjacent to the main building is the kiln house, within which are two kilns; one for firing common wares at a low temperature, the other for high temperature work.

The New York State Legislature in the session of 1912 appropriated the sum of \$25,000 to be expended in provided additional kilns and firing equipment together with a fireproof annex to contain the same. This extension is expected to be ready for the opening of the school in 1913.

### Courses Offered

The courses of study which lead to a degree extend over a period of four years and embrace, together with the science, technology and art special to clay-working, such subjects as are the equivalent of the usual college course. Certain subjects are required, but the ceramic work is elective as to the particular branch of clay working to be followed.

The technical course is designed to qualify men to occupy positions as superintendents, scientific experts and ceramic chemists.

The course in ceramic art is intended to fit the student for the designing and producing of artistic pottery. The course covers a wide field of art and letters in the belief that a successful artist must possess a liberal education.

For the accommodation of those desiring to qualify as teachers it is permitted to elect psychology, history of education and pedagogy in place of other college subjects. An opportunity for practice teaching is afforded in the public schools of Alfred.

Students having a practical knowledge of clay working will be received for short terms, and certificates will be given according to the work done.

## Benefits of the School

The demand for trained clay-workers has grown to considerable proportions during the last few years. Capital is becoming more and more interested in the development of clay lands and shale banks; nor is there any likelihood that this interest will decrease.

On the other hand the number of men who have studied in schools is very small compared with the openings to be filled. Hitherto, no student who has passed through the school successfully has remained unemployed, and the director is continually in receipt of applications for persons qualified to fill responsible positions. Every effort is made by the faculty to place the students in communication with manufacturers desiring to offer them employment.

The student successfully pursuing the technical course will be able, presuming that his personal capacity is good, to take up the practical work of manufacturing clay wares. He will have had experience with every description of clay, and with the minerals and oxides used in preparing bodies and glazes. He will have acquired a knowledge of machinery and kilns which he will find of the greatest value; in short, he will be a trained man as regards the problems of clay-working.

Students who conscientiously pursue the course in ceramic art will be able to design and make artistic pottery, preparing their own clays and compounding their own glazes, if necessary. Those who elect normal studies will be thoroughly equipped to teach not only clay-working, but drawing and design in schools.

## Physical Training

The aim of the work in physical training is to bring the whole body to its normal condition, to acquire ease and precision in movement, and to develop the health and strength of the student.

**GYMNASIUM.** The gymnasium is on the lower floor of Babcock Hall. It is equipped with chest weights, dumb bells, wands, Indian clubs, horizontal and parallel bars, rings, poles and floor mats. A dressing-room with individual lockers, a well equipped bath room with shower baths; and two handball courts are provided. The gymnasium is in charge of the physical director. All students, unless excused by the instructor on the advice of a physician, are required to do two semester hours of work during the freshman year and one during the sophomore year, under the direction of the instructor in physical training.

**ATHLETIC FIELD.** The athletic field embraces over three acres of level land. All intercollegiate contests in football, baseball, and tract athletics are held on this field. The field affords a running track (one-sixth of a mile). Appropriate apparatus for field sports is provided.

**OUTDOOR SPORTS,** including tennis, are in the immediate charge of the athletic association, which has a football team playing under intercollegiate rules, a baseball nine, and a basket ball team. For tennis there are excellent courts and an annual tournament is maintained.

Athletics, however, are not carried to extremes. The committee on athletics from the faculty, and the graduate manager exercise general supervision, for it is the purpose of the university to give due attention to the physical welfare of its students, and at the same time keep the physical in proper relation to the intellectual and moral development.

### Fees per Semester

#### TUITION and INCIDENTAL FEE (except to residents

	of New York State)	-	\$25 00
ATHLETIC FEE	-	-	2 00
READING ROOM FEE	-	-	30
EXTRAS, for use of instruments and laboratory materials:			
Gymnasium fee (all Freshmen)	-	-	1 00
Surveying	-	-	4 00
Chemistry Breakage Deposit, per year, Chem. 1	-	-	2 00
Chemistry Breakage Deposit, per year, Chem. 2, 3, 4, 5,	-	-	5 00
Elementary Chemistry	-	-	4 00
Blowpipe Analysis and Mineralogy	-	-	4 00
Qualitative Analysis	-	-	5 00
Quantitative Analysis, Advanced Quantitative Analysis or Clay Analysis	-	-	5 00
Physics 1, Laboratory	-	-	1 50
Advanced Physics, Laboratory	-	-	2 50
Botany or Zoology	-	-	4 00
Entomology	-	-	2 00
Physiology	-	-	1 00
Shop Fee	-	-	4 00
GRADUATION FEE	-	-	5 00

Students not registered in regular courses in ceramics may be permitted to enter the school for special work and, if not residents of the state, will be charged three dollars for each semester hour. Student residents of the state for one year preceding the date of their admission are entitled to free tuition provided their registration is for not less than three semester hours, but such students are not entitled to free tuition in any college class nor are students registered in the college entitled to free tuition in the School of Ceramics in respect of any subject for which college credit is given.

Bills will be presented by the third Friday of the semester, and must be paid at the office of the treasurer by the fifth Friday of the semester.

## Rooms and Board

Rooms and board for women can be had at Ladies Hall, and rooms for men at Burdick Hall, at the following rates:

Rooms, furnished, per semester	-	-	\$10 00 to \$24 00
Board, per week	-	-	4 00

All rooms are fitted with gas fixtures for heating and lightning. Gas is paid for according to amount used at 32c per thousand.

Board is furnished to men at Burdick Hall on the co-operative plan.

Rooms and board, including fuel, can be obtained in private families at from \$3.00 to \$5.00 per week. Board in clubs, organized and managed by the students themselves, varies from \$2.90 to \$3.50 per week, according to the means and inclinations of the members.

## Estimated Annual Expenses

Excluding cost of clothing and travel, one can go through a college year by close economy upon \$175.00 and by exercising care, upon \$200.00. An allowance of \$250.00 is comfortable, and \$300.00 is liberal.

Board, \$2 90 to \$4 00 per week	-	-	\$104 00 to \$144 00
Rooms, \$10 00 to \$24 00 per semester	-	-	20 00 to 48 00
Gas, \$3 00 to \$6 00 per year	-	-	3 00 to 6 00
Laundry, per year	-	-	10 00 to 15 00
Books	-	-	10 00 to 25 00
Lyceum dues, etc.	-	-	2 00 to 10 00
Incidentals and extras	-	-	25 00 to 35 00
Total for year	-	-	\$174 00 to \$283 00

## Self-Support

Many of the graduates have been persons of very limited means who worked their way through college. While the school cannot guarantee work to all applicants, enterprising students can usually find employment in the town with satisfactory compensation for all the time they can profitably spare from their studies. Some earn enough to meet the greater part of their expenses. Students should distinctly understand that when they attempt entire self-support they should lengthen their term of study.

## Terms and Vacations

The school year consists of two terms, or semesters, of about eighteen weeks each. There is a vacation at the Holidays of about two weeks; a short recess at Easter time; and a summer vacation of about fifteen weeks.

## Class Exercises

The class exercise period is one hour in length; in laboratory work, however, the class exercise continues through two or more hours, as the case may be. There are no class exercises on Saturday or Sunday. The schedule of recitation is fixed by the faculty. Each student is expected to have at least fifteen exercises per week. Students who take more than seventeen exercises weekly must maintain an average standing of ninety per cent and obtain the consent of the director. Any student who fails to attain a standing of at least sixty per cent in a given subject will not receive credit in that subject.

No student will be permitted to remain in the school unless he has received credit for ten hours of work in the preceding semester.

## Unit or Measure of Credit

One class exercise per week for one term or semester, is taken as the unit of measure of credit, and is termed a semester hour. In each course one hundred and twenty semester hours are required.

## Absences and Excuses

It is expected that no student will be absent from any college exercise except in case of necessity. Excuses for absences from class exercises are made to a committee of the faculty known as the committee on absences. All excuses are granted with the understanding that the work missed will be made up to the satisfaction of the instructor. Each unexcused absence deducts one per cent from the final standing for the semester, or two per cent if occurring within three days immediately preceding or following a recess or vacation.

## Examinations

Final examinations are held at the close of each semester in addition to occasional written tests during the semester. Fees will be charged for all examinations taken by those not regular members of classes, or at other times than those appointed for the class examinations.

# Admission

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Candidates for admission to the freshman class must be at least fifteen years of age and must present certificates of good moral character. The particular requirements for entrance are explained below. Preparatory work may be estimated either in "units" or in New York State regents "counts." The "unit" represents a course of five recitations weekly throughout an academic year of the preparatory school. The regents "count" represents one recitation weekly for one year. Fifteen "units" or seventy-five "counts" must be offered.

## Entrance Requirements

### [a] To the Technical Course

ENGLISH. 3 units or 15 counts. The candidate must be familiar with elementary rhetoric, both as a science and an art, and must be proficient in spelling, punctuation, idiom and division into paragraphs. Preparation must include the work in English prescribed by the various college associations.

Each student must be able to pass an examination upon ten books selected from the list prescribed by the college entrance associations. The following ten are recommended: Shakespeare's Julius Cæsar, and The Merchant of Venice; The Sir Roger de Coverly Papers; Goldsmith's The Deserted Village; Scott's Ivanhoe; Hawthorne's The House of the Seven Gables; Irving's Sketch Book; Ruskin's Sesame and Lilies; Lowell's The Vision of Sir Launfal; Longfellow's Courtship of Miles Standish.

In addition to the above a thorough study of each of the works named below is required. The examination will be upon subject matter, form and structure.

Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso and Comus; or Tennyson's Idylls of the King; Burke's Speech on Conciliation with America, or Washington's Farewell Address and Webster's Bunker Hill Oration; Macaulay's Life of Johnson, or Carlyle's Essay on Burns.

**MATHEMATICS.** 3 units or 15 counts, viz: Elementary Algebra including fundamental operations, factoring, fractions, ratio, proportion, radicals, quadratics, Plane Geometry, including the straight line, angle, circle, proportion, similarity, and areas. Solid Geometry and Plane Trigonometry.

**FOREIGN LANGUAGES.** 2 units or 10 counts. Any one language may be offered.

The candidate will be expected to have a practical knowledge of pronunciation, as well as a thorough mastery of grammatical forms and syntax, and to possess a familiarity with the literature in proportion to the amount of work offered.

**DRAWING.** 1 unit or 5 counts. A year's course in Drawing,

**SCIENCE.** 3 units or 15 counts. Chemistry and any two of the following: Biology, Physical Geography, Physics.

**ELECTIVE.** 3 units or 15 counts.

#### SUMMARY

English	3	units	or	15	counts
Mathematics	3	"	"	15	"
Foreign Language	2	"	"	10	"
Drawing	1	"	"	5	"
Science (including chemistry)	3	"	"	15	"
Elective	3	"	"	15	"
 Total	 15	 "	 "	 75	 "

[b] To the Art Course

For entrance to the course in ceramic art and normal study the requirements are those admitting to either of the courses in Alfred University.

NOTE—Candidates for admission to any of the above courses, may, in exceptional cases, offer equivalents as substitutes for the required studies subject to the approval of the director.

Admission is gained either on certificates or on examination, as follows:

### Admission on Certificate

**REGENTS' CREDENTIALS.** The credentials of the University of the State of New York are accepted instead of an examination in the subjects required for admission, so far as they cover these requirements. [For description of subjects, see *Entrance Requirements*.]

**PRINCIPAL'S CERTIFICATE.** Certificates are also received from principals of preparatory or high schools outside of New York State, provided such schools are known to the faculty for thoroughness of instruction. Such certificate must specify, in connection with each subject, the extent to which it has been pursued, by giving the text-book used, the method of instruction, the amount of time given to it, the date of the final examination, the degree of the applicant's proficiency, and must clearly show that the student has met the requirements in every detail. The school furnishes blank forms for such certificates upon application of principals of approved schools.

Principals of preparatory schools who desire to have their students admitted on certificate are invited to correspond with the director.

### Admission on Examinations

Candidates who fail to present satisfactory certificates must pass a written examination in the required subjects. Examinations in all subjects required for admission are

held at Alfred at the beginning of the year. Candidates must report at the director's office and obtain permits for examination. The result of the examination may be obtained from the director.

### Conditioned Students

No student can enter the freshman class conditioned in more than two academic subjects. These conditions must be removed within one year.

### Admission to Advanced Standing

Students from other schools, having a course equivalent to that of the New York State School, may enter at the point from which they take dismissal, upon presentation of satisfactory certificates of standing and character, including an honorable dismissal.

### Senior Thesis

There is required of each candidate for a degree a thesis, for which credit is given, two hours in the first semester and three in the second semester of the Senior year. The title of the thesis must be chosen in the field of Ceramics not later than November 1, and must be approved by the director. The thesis shall embody the results of actual independent research, and must be submitted for approval not later than May 1. A type-written copy must be deposited with the director.

### Graduation

While no student will be permitted to graduate with a smaller credit than one hundred and twenty semester hours, four full years of resident work will be required in either course. Upon students who satisfactorily complete the technical course Alfred University will confer the degree of Bachelor of Science, and upon students who satisfactorily complete the course in Ceramic Art the degree of Bachelor of Philosophy.

# Course of Study

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All the studies in the Freshman and Sophomore years are required. Those of the Junior and Senior years are elective in part, but every student is expected to cover as far as possible the subjects indicated.

## Required Studies

Arabic numerals indicate the number of class exercises per week.

Freshman Year			
TECHNICAL COURSE		ART COURSE	
History (1)	3	English (1)	2
English (1)	2	Foreign Language	3
Foreign Language	3	Chemistry 1	3
Chemistry 2	3	Mathematics (1)	3
Mathematics (4)	3	Design	1½
Laboratory	1	Drawing	1
Physical Training	1	Modeling	1
Ceramic Theory 1	1	Physical Training	1
		Ceramic Theory 1	1
	17		16½

In addition to the above, all Freshmen are required to attend a course of lectures on Ethics given by the President, counting one semester hour for the year.

Sophomore Year			
TECHNICAL COURSE		ART COURSE	
English (2)	2	English (2)	2
Mathematics (5)	3	Foreign Language	3
Chemistry 3	3	Logic and Psychology	2
Foreign Language	3	Sociology	2
Ceramic Theory 2	2	Ceramic Theory 2	2
Industrial Mechanics	5 1	Design	1½
Laboratory	1½	Drawing	1½
Physical Training	½	Modeling	1
		Laboratory	1½
		Physical Training	½
	16		17

Junior Year

TECHNICAL COURSE		ART COURSE	
Physics 1	3	History (1)	3
Industrial Mechanics 8	1½	History of Art	2
Laboratory	2	Design	1½
Ceramic Theory 3	2	Drawing	2
Elective	8	Modeling	2
	<hr/>	Elective	6
	16½		<hr/>
			16½

Students in the technical course will take ceramic technology as major subject and will elect as minor, chemistry, mathematics or foreign language.

Students in the art course will take ceramic art as major, and will elect as minor, history, philosophy, natural science or mathematics.

The following subjects should be pursued as far as possible in the Junior and Senior years, enough work being elected to complete at least one hundred and twenty semester hours.

TECHNICAL COURSE		ART COURSE	
Chemistry 4		Biology (1)	
“ 5		“ (2)	
“ 6		Chemistry 2	
Physics 2		Education (4)	
Geology (1)		“ (5)	
Economic Geology (3)		Design	
German		Drawing	
Drafting		Modeling	
Mathematics (6)			
“ (7)			

The numbers in parenthesis refer to the courses described in the college catalogue of Alfred University to which reference should be made.

For detailed information as to the courses in Mathematics, Modern Languages, English and Natural Sciences see the College Catalogue of Alfred University.

# Departments of Instruction

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## Technology

Professor Binns

Mr. Heubach

1. A course of lectures with reading, occasional essays, and problems, on the foundation principles of the ceramic industries. Freshman year, *one hour*.
2. A course of lectures, with recitations, on the principles of calculation involved in ceramic composition, followed by lectures, with recitations, on the methods of manufacture of clay wares, ancient and modern. Sophomore year, *two hours*.
3. A course of lectures, with recitations, on clays and other ceramic materials, their properties and preparation, followed by lectures, with recitations, on the technology of clay wares for special purposes. White wares, faience, earthen ware, sanitary ware, once fired ware, fireproof and refractory ware, hard and soft porcelain, electrical insulating ware. Junior year, *two hours*.
4. A course of elementary workshop practice with exercises in simple composition. Freshman year, *one hour*.
5. A course of laboratory demonstration and practice mixing clay bodies and glazes. Elementary kiln work. Sophomore year, *one and one-half hours*.
6. A course of laboratory demonstration and practice. Technical and industrial problems. Chemical and mineral analysis of clays. Junior year, *two hours*.

7. Laboratory and workshop practice in continuation of course 6. Production of fine and special wares. Kiln construction and pyrometry. Senior year, *four hours*.

Students in the short course will be admitted to any of the foregoing lectures and laboratory work at the discretion of the faculty.

## Chemistry

Professor Bole

Professor W. A. Titsworth

**CHEMISTRY I.** A thorough course in the theory and principles of the science of chemistry, covering Alexander Smith's College Chemistry. It is supposed that students entering this course shall have had high school physics, and preferably high school chemistry. Lecture and recitations *two hours*, laboratory *one hour*.

2. **QUALITATIVE ANALYSIS.** The detailed separation of the metals, non-metals and acid radicals. The student is required to apply the theory learned in course 1 and to explain the reason for each reaction. The ionic theory, solubility product, law of concentration, hydrolysis, amphoteric hydroxides, etc., are studied and application made in the separations. A laboratory course consisting of four hours of laboratory work a week throughout the year, with one hour lecture. Required of major students. Text-book, Stieglitz. Prerequisite, course 1 or its equivalent. *Three hours*.

3. **QUANTITATIVE ANALYSIS.** A laboratory course of four hours with a weekly lecture throughout the year. The work embraces the principal methods of gravimetric, volumetric and electro-chemical analysis, and the use of the reference works and the chemical journals. This course gives quantitative application of the laws which are studied qualitatively in course 2. Prerequisites, courses 1 and 2. *Three hours*.

4. TECHNICAL ANALYSIS. Lectures and laboratory work. The analysis of silicate and carbonate rocks, and of iron and steel is carried out in detail. The student is given the opportunity to compare different methods of analysis rather than to follow any specified method. Prerequisites, courses 1, 2 and 3. *Three hours. I.*

5. GAS AND FUEL ANALYSIS. One hour lecture and four hours laboratory. The complete analysis of flue, illuminating and natural gases is carried out in the laboratory. The study of the various fuels is taken up and different samples are analyzed by the student. The student is taught to use the Orsat & Hemphill apparatus and the Parr Calorimeter. Prerequisites, courses 1, 2, 3, 4. *Three hours. II.*

6. PHYSICAL CHEMISTRY. Introduction to the concepts of modern physical chemistry. The first semester is taken up with a detailed study of the quantitative laws governing gases, liquids, solids, and substances in solution.

During the second term a study of the phase rule and electro-chemistry is taken up and a detailed study of the laws of chemical equilibrium and applications of the same are carried out. Prerequisites, courses 1 and 2. *Two hours.*

## Physics

Professor W. A. Titsworth

1. GENERAL PHYSICS. A course in general physics for those who have had high school physics. The student should have studied algebra, geometry, and plane trigonometry. Three hours a week, lectures and recitations, and one two-hour period of laboratory work. Special emphasis is laid upon the application of the principles studied in the course to nature and to daily life. In the laboratory typical experiments are performed by the student. The lectures are illustrated by experi-

ments as far as possible. First semester, mechanics, sound and heat. Second semester, electricity and light. Text-book, Kimball's College Physics. *Four hours.*

2. PRACTICAL PHYSICS. This is a laboratory course intended for those who have had a course in College Physics without the corresponding laboratory work. It will consist of two double laboratory hours a week and will cover the same experiments as pursued by course 1. Occasionally a lecture, or a recitation to work problems and discuss the principles, will be substituted for the laboratory. During the second semester some advanced experiments will be given. *Two hours.*

3a. LIGHT AND HEAT. An advanced course in these subjects following some standard texts such as Edser's. Open to those who have had course 1. *Three hours. I.*

3b. MAGNETISM AND ELECTRICITY. An advanced course in these subjects open to students who have had course 1. The work will be somewhat technical before the close of the semester. *Three hours. II.*

## Industrial Mechanics

Professor Crandall

1. ELEMENTARY DRAFTING. Open to all regular and special students of the college. Elementary principles, geometric problems, projections, etc. *Two hours, counting one and one-half hours.*

2. ADVANCED DRAFTING. Open to those who have completed the first year's work and solid geometry. Descriptive geometry, shades, shadows, and perspective, with their applications. *Two hours, counting one and one-half hours.*

3. DESCRIPTIVE GEOMETRY. Taught both by class exercises, in which the student demonstrates the various problems, and by instrumental solution in the drafting

room, in which he makes accurate drawings illustrating these problems. This course includes the principles of shades, shadows, and perspective, all developed according to mathematical principles. *Two hours.*

4. MACHINE OR ARCHITECTURAL DRAFTING. Prerequisites, courses 1, 2, and 3. This course develops complete sets of working drawings, including bills of materials and estimates of either machine, architectural, or manual training subjects as the student may elect. *Two hours, counting one and one-half hours.*

5. WOOD-WORKING. This is an elementary course open to all students of the university. The purpose is to teach the students the intelligent use of the more common hand tools used in the shop, the care and the proper methods of sharpening them, and the correct method of making the principal joints used in carpentry and cabinet-making. As soon as each kind of joint is thoroughly understood, the student is taught its practical use in making a piece of furniture or apparatus. Special stress is placed on accuracy and neatness of workmanship, so that the student may early learn the necessity of careful, painstaking effort in order to accomplish good results. *Two hours, counting one hour.*

6. PATTERN-MAKING. Prerequisite, course 5 or its equivalent. This course aims to give the student the elements of practical wood pattern-making. Each article made is to be a practical pattern which may be successfully cast in any foundry. The work is made very technical so that the student may become acquainted with actual shop methods so far as it is possible in a school shop. Accuracy and first-class workmanship are essential for success in this course. *Two hours, counting one and one-half hours.*

7. FORGING. Prerequisites, courses 5 and 6, or their equivalent. A practical course in the drawing, welding, and bending of iron for any purpose. The management

of the fire and the forge is considered of first importance in this course. A large variety of articles in both iron and steel is made during the year, the work in steel coming the latter part of the year. Such tools are made from steel as cold chisels, lathe and planer tools, and special tools for special purposes. At frequent intervals during the year lectures and demonstrations are given on such subjects as the structure and manufacture of steel and iron, welding compounds, commercial shop methods, tempering, annealing, etc. *Two hours, counting one hour.*

8. MACHINE SHOP PRACTICE. Prerequisites, courses 5 and 6, or their equivalent. This course consists of exercises in chipping, filing, and fitting, lathe and planer works, and operations on the drill press. Skill in manipulation is not sought so much as a working knowledge of methods, a familiarity with the limitations and possibilities of the tools, and a greater insight into the practical, productive, and commercial side of shop methods and management. To this end, occasional lectures are given throughout the year on such subjects as commercial machine shop methods, time keeping systems, piece-work and premium plans, cost keeping, and stock room management. *Two hours, counting one and one-half hours.*

### Ceramic Art

Miss Binns

Miss Greenwood

This course is intended to give the student an appreciation of the principles underlying all art expression, especially through the crafts and pottery in particular. For this purpose courses are given in the history of Art as well as in the study of nature, the possibilities and limitations of materials and principles of true decoration. The course is planned to extend progressively over the four years.

The following outlines the course:

1. DRAWING in pencil, charcoal and water-color from nature, animals, still-life and casts. Memory drawing and composition. Four hours studio work. Freshman year. *One hour.*
2. DRAWING, in continuation of 1. Sophomore year, *one and one-half hours.*
3. DRAWING. Advanced work in drawing and painting. Junior and Senior years. *Two hours.*
4. MODELING IN CLAY from casts, nature and animals. Memory modeling and composition. Four hours studio work. Freshman year. *One hour. I.*
5. POTTERY BUILDING. Elementary pottery forms, methods of decoration. Freshman year. *One hour. II.*
6. MODELING. In continuation of 4. Sophomore year, *One hour. I.*
7. POTTERY BUILDING. In continuation of 5. Sophomore year. *One hour. II.*
8. MODELING. Advanced work from the cast and from the pose, original compositions. Junior and Senior years. *Two hours. I.*
9. POTTERY BUILDING. Advanced work in form and decoration. Junior and Senior years. *One hour. II.*
10. DESIGN. Study of the principles of design, color, historic ornament, adaption of plant form, the possibilities and limitations of decoration as applied to the crafts, consideration of all-over patterns and space-filling in general. Required of all students. *One and one-half hour.*
11. HISTORY OF ART. A course of lectures with reading and recitations on the history of art from earliest periods down to the present day. *Two hours.*
12. NORMAL TRAINING, drawing, design and clay-work as applied in public schools with opportunity for practice-teaching. Four hours studio work and one lecture a week. *Two hours.*

# Department of Investigation and Research

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## Clay Testing

Professor Binns

The State School of Ceramics is fitted and the experts in charge are qualified, for the professional examination and testing of clays for economic purposes. Such clays may be classified under the following heads:

- (a) Kaolin, white burning residual clay.
- (b) Kaolin, white burning, washed for market, used in the manufacture of pottery, porcelain and paper.
- (c) Ball clay, white or cream burning, sedimentary clay of high plasticity, used in pottery manufacture.
- (d) Stone ware clay, gray or cream burning, more or less sandy in character, used in stone ware manufacture.
- (e) Fire clay, buff or white burning, refractory, used for manufacture of fire brick
- (f) Brick clay, including colored clays and shales, used for the manufacture of brick and tile of various qualities and descriptions.

For each of the above classes special tests are necessary, and the charges made are proportionate to the work required.

A report upon each sample will be furnished and must be understood to refer only to the samples submitted unless the experts are instructed to examine the deposit

and prepare their own samples, in which case special charges will be made. The report includes physical tests, and chemical analysis where necessary.

Advice as to washing or other preparation of the clay is also given, together with an opinion as to the industry to which the material may be applied.

## Industrial Problems

Professor Binns

Mr. Heubach

The problems incidental to the manufacture of clay wares are regularly investigated at the school. Manufacturers are invited to present questions for study. Persons resident within the state are entitled to reasonable services without charge.





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THE  
NEW YORK STATE SCHOOL  
OF CLAY-WORKING AND CERAMICS



ALFRED, NEW YORK

1913-1914

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JANUARY, 1914

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## **BOARD OF MANAGERS**

(Appointed annually by the Trustees of Alfred University)

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# Calendar

## FIRST SEMESTER, 1913-1914

		1913
Registration, Entrance Examinations	Wednesday	Sept. 17
Instruction begins	Thursday	Sept. 18
<b>Election Day</b>	<b>Tuesday</b>	<b>Nov. 4</b>
<b>Thanksgiving Day</b>	<b>Thursday</b>	<b>Nov. 27</b>
Recess	Friday	Nov. 28
Holiday Recess begins	Tuesday evening	Dec. 23
<b>HOLIDAY RECESS</b>		

		1914
Instruction resumed	Tuesday morning	Jan. 6
Semester Examinations begin	Monday	Jan. 26
Examinations end, Semester ends	Friday	Jan. 30

## SECOND SEMESTER, 1913-1914

Registration	Tuesday	Feb. 3
Instruction begins	Wednesday	Feb. 4
Spring Recess begins	Wednesday evening	April 8

### SPRING RECESS

Instruction resumed	Tuesday morning	April 21
<b>Memorial Day</b>	<b>Saturday</b>	<b>May 30</b>
Examinations begin	Monday	June 1
Examinations end	Friday	June 5
Degrees conferred at University Commencement	Thursday	June 11

## FIRST SEMESTER, 1914-1915

		1914
Registration, Entrance Examinations	Wednesday	Sept. 16
Instruction begins	Thursday	Sept. 17
<b>Election Day</b>	<b>Tuesday</b>	<b>Nov. 3</b>
<b>Thanksgiving Day</b>	<b>Thursday</b>	<b>Nov. 26</b>
RECESS	Friday	Nov. 27
Holiday Recess begins	Wednesday evening	Dec. 23
<b>HOLIDAY RECESS</b>		

		1915
Instruction resumed	Wednesday morning	Jan. 6
Semester Examinations begin	Wednesday	Jan. 20
Examinations end, Semester ends	Tuesday	Jan. 26

## SECOND SEMESTER, 1914-1915

Semester begins	Wednesday	Jan. 27
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# Faculty

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BOOTHE COLWELL DAVIS, A. M., Ph. D., D. D., President,  
Professor of Ethics.

CHARLES F. BINNS, Sc. M., Director,  
Professor of Ceramics

EARLE T. MONTGOMERY, E. M. in Cer., Assistant Director,  
Assistant Professor of Ceramics.

ALPHEUS B. KENYON, Sc. D., Registrar,  
Professor of Mathematics.

PAUL E. TITSWORTH, Ph. D.,  
Professor of Modern Languages.

JAMES D. BENNEHOFF, Sc. M.,  
Professor of Natural Science.

LINTON B. CRANDALL, Sc. B.,  
Professor of Industrial Mechanics.

WALDO A. TITSWORTH, Sc. M.,  
Professor of Physics.

GEORGE ADDISON BOLE, A. M.,  
Professor of Chemistry.

MYRTA A. LITTLE, A. M.,  
Associate Professor of English.

M. ELSIE BINNS,  
Instructor in Modeling and Pottery.

CLARA C. GREENWOOD,  
Instructor in Drawing and Design.

A. L. WHITFORD,  
Janitor and Machinist.

# New York State School of Clay-Working and Ceramics

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In the field of applied science and commercial engineering the subject of Clay-working is becoming daily more important. To the architect and builder clay offers the most satisfactory fire-proof material, to the housewife pottery is indispensable and to the artist clay and clay-wares afford at once a facile means of expression and a prominent feature of home decoration.

The problems which confront the clay-worker are unique. He must learn to win his material economically from the earth, to shape his wares with due regard to both utility and art, to glaze or otherwise finish them in a satisfactory manner and to burn the whole successfully upon a large scale. His education must therefore be comprehensive and complete. He must, in a word, be a specialist, and to this end the New York State School was established.

Chapter 383, Laws of New York State, 1900, provided for the construction and maintenance of the school, and in order to secure the necessary facilities for collateral branches of study Alfred University was chosen as the location.

For this work the University offers great advantages. Laboratories of chemistry and physics, libraries, museums of geology and natural history, workshops for manual training, and all the departments of general culture are available, so that the many and varied requirements of a liberal education are fully met.

The State of New York contains vast deposits of clays and shales at present lying dormant. It also contains large numbers of young men and women who are seeking profitable employment. The work of the school is to bring these together. Neither the science nor the art is neglected. Attention is given to the improvement of methods of manufacture and the reduction of cost so that the resources of the state may be fully developed and that within its borders may be manufactured the clay-wares, both coarse and fine, necessary for its own consumption.

## Building and Equipment

The building of the New York State School of Clay-Working and Ceramics has been especially designed for the purposes of the school, and is located on land which was deeded by Alfred University to the people of the State of New York. It is built of red brick and terra-cotta with gray trimmings and roofed with brown tile. The main building has a floor space of about thirteen thousand square feet, and a frontage of seventy-five feet.

To this has been added a fireproof wing measuring about 36 by 57 feet and three stories in height.

In the main basement are located a full battery of kilns, the heavy machinery for the manufacture of brick, tile, hollow blocks and roofing tile, the slip-making plant, cylinders for glaze preparation, and a workshop fitted with modern appliances for pottery and porcelain manufacture. There are also rooms for mold making and drying.

In the sub-basement are located the heating plant and fuel storage and a damp cellar.

On the principal floor are the executive offices, the technical laboratory, a lecture room, a room for furnaces, the chemical laboratory and balance room and a special kiln room for the Art department. On the second floor

is the department of Design and Applied Art and on the third floor a lecture room and a studio for advanced work.

The motive power is supplied by two Otto gas engines of 36 and 8 horse power respectively.

### Courses Offered

The courses of study which lead to a degree extend over a period of four years and embrace the science, technology and art special to clay-working. All the subjects are required, but the ceramic work is elective as to the particular branch of clay working to be followed.

The course in Ceramic Engineering is designed to qualify men to occupy positions as superintendents, scientific experts and ceramic chemists.

The course in Applied Arts is intended to fit the student for the designing and producing of artistic pottery.

### Benefits of the School

The demand for trained clay-workers has grown to considerable proportions during the last few years. Capital is becoming more and more interested in the development of clay lands and shale banks; nor is there any likelihood that this interest will decrease.

On the other hand the number of men who have studied in schools is very small compared with the openings to be filled. Hitherto, no student who has passed through the school successfully has remained unemployed, and the director is continually in receipt of applications for persons qualified to fill responsible positions. Every effort is made by the faculty to place the students in communication with manufacturers desiring to offer them employment.

The student successfully pursuing the technical course will be able, presuming that his personal capacity is good, to take up the practical work of manufacturing

clay wares. He will have had experience with every description of clay, and with the minerals and oxides used in preparing bodies and glazes. He will have acquired a knowledge of machinery and kilns which he will find of the greatest value; in short, he will be a trained man as regards the problems of clay-working.

Students who conscientiously pursue the course in applied art will be able to design and make artistic pottery, preparing their own clays and compounding their own glazes, if necessary.

### Physical Training

The aim of the work in physical training is to bring the whole body to its normal condition, to acquire ease and precision in movement, and to develop the health and strength of the student.

**GYMNASIUM.** The gymnasium is on the lower floor of Babcock Hall. It is equipped with chest weights, dumb bells, wands, Indian clubs, horizontal and parallel bars, rings, poles and floor mats. A dressing-room with individual lockers, a well equipped bath room with shower baths; and two handball courts are provided. The gymnasium is in charge of the physical director. All students, unless excused by the director on the advice of a physician, are required to do two semester hours of work during the freshman year and one during the sophomore year, under the direction of the instructor in physical training.

**ATHLETIC FIELD.** The athletic field embraces over three acres of level land. All intercollegiate contests in football, baseball, and track athletics are held on this field. The field affords a running track (one-sixth of a mile). Appropriate apparatus for field sports is provided.

**OUTDOOR SPORTS,** including tennis, are in the immediate charge of the athletic association, which has a football team playing under intercollegiate rules, a base

ball nine, and a basket ball team. For tennis there are excellent courts and an annual tournament is maintained. Athletics, however, are not carried to extremes. The committee on athletics from the faculty, and the graduate manager exercise general supervision, for it is the purpose of the university to give due attention to the physical welfare of its students, and at the same time keep the physical in proper relation to the intellectual and moral development.

### Fees per Semester

ATHLETIC FEE	-	-	-	-	-	\$2 00
READING ROOM FEE	-	-	-	-	-	1 00
EXTRAS, for use of instruments and laboratory materials:						
Gymnasium fee (all Freshmen)	-	-	-	-	-	1 00
Surveying	-	-	-	-	-	4 00
Chemistry Breakage Deposit, per year, Chem. 1	-	-	-	-	-	2 00
Chemistry Breakage Deposit, per year, Chem. 2, 3, 4, 5,	-	-	-	-	-	5 00
Elementary Chemistry	-	-	-	-	-	4 00
Blowpipe Analysis and Mineralogy	-	-	-	-	-	4 00
Qualitative Analysis	-	-	-	-	-	5 00
Quantitative Analysis, Advanced Quantitative Analysis or Clay Analysis	-	-	-	-	-	5 00
Physics 1, Laboratory	-	-	-	-	-	1 50
Advanced Physics, Laboratory	-	-	-	-	-	2 50
Shop Fee	-	-	-	-	-	4 00
GRADUATION FEE	-	-	-	-	-	5 00

No tuition is charged to students who are prepared to enter the regular courses, but no student is entitled to free tuition in any college class not forming part of a course in the School of Ceramics nor are students registered in the college entitled to free tuition in the School of Ceramics in respect of any subject for which college credit is given.

Bills will be presented by the third Friday of the semester, and must be paid at the office of the treasurer by the fifth Friday of the semester.

## Rooms and Board

Rooms and board for women can be had at Ladies Hall, and rooms for men at Burdick Hall, at the following rates:

Rooms, furnished, per semester	-	-	\$10 00 to \$24 00
Board, per week	-	-	4 00

All rooms are fitted with gas fixtures for heating and lighting. Gas is paid for according to amount used at 32c per thousand.

Board is furnished to men at Burdick Hall on the co-operative plan.

Rooms and board, including fuel, can be obtained in private families at from \$3.00 to \$5.00 per week. Board in clubs, organized and managed by the students themselves, varies from \$2.90 to \$3.50 per week, according to the means and inclinations of the members.

## Estimated Annual Expenses

Excluding cost of clothing and travel, one can go through a college year by close economy upon \$175.00 and by exercising care, upon \$200.00. An allowance of \$250.00 is comfortable, and \$300.00 is liberal.

Board, \$2 90 to \$4 00 per week	-	-	\$104 00 to \$144 00
Rooms, \$10 00 to \$24 00 per semester	-	-	20 00 to 48 00
Gas, \$3 00 to \$6 00 per year	-	-	3 00 to 6 00
Laundry, per year	-	-	10 00 to 15 00
Books	-	-	10 00 to 25 00
Lyceum dues, etc.	-	-	2 00 to 10 00
Incidentals and extras	-	-	25 00 to 35 00
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Total for year	-	-	\$174 00 to \$283 00

## Self-Support

Many of the graduates have been persons of very limited means who worked their way through college. While the school cannot guarantee work to all applicants, enterprising students can usually find employment in the

town with satisfactory compensation for all the time they can profitably spare from their studies. Some earn enough to meet the greater part of their expenses. Students should distinctly understand that when they attempt entire self-support they should lengthen their term of study.

### **Terms and Vacations**

The school year consists of two terms, or semesters, of about eighteen weeks each. There is a vacation at the Holidays of about two weeks; a short recess at Easter time; and a summer vacation of about fifteen weeks.

### **Class Exercises**

The class exercise period is one hour in length; in laboratory work, however, the class exercise continues through two or more hours, as the case may be. There are no class exercises on Saturday or Sunday. The schedule of recitation is fixed by the faculty. Any student who fails to attain a standing of at least sixty per cent in a given subject will not receive credit in that subject.

No student will be permitted to remain in the school unless he has received credit for ten hours of work in the preceding semester.

### **Unit or Measure of Credit**

One class exercise per week for one term or semester, is taken as the unit or measure of credit, and is termed a semester hour. In each course leading to a degree one hundred and forty semester hours are required.

### **Absences and Excuses**

It is expected that no student will be absent from any college exercises except in case of necessity. Excuses for absences from class exercises are made to a committee of

the faculty known as the committee on absences. All excuses are granted with the understanding that the work missed will be made up to the satisfaction of the instructor. Each unexcused absence deducts one per cent from the final standing for the semester, or two per cent if occurring within three days immediately preceding or following a recess or vacation.

### Examinations

Final examinations are held at the close of each semester in addition to occasional written tests during the semester. Fees will be charged for all examinations taken by those not regular members of classes, or at other times than those appointed for the class examinations.

# Admission

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Candidates for admission to the freshman class must be at least fifteen years of age and must present certificates of good moral character. The particular requirements for entrance are explained below. Preparatory work may be estimated either in "units" or in New York State regents "counts." The "unit" represents a course of five recitations weekly throughout an academic year of the preparatory school. The regents "count" represents one recitation weekly for one year. Fifteen "units" or seventy-five "counts" must be offered.

## Entrance Requirements

### [a] To the Course in Ceramic Engineering

ENGLISH. 3 units or 15 counts. The candidate must be familiar with elementary rhetoric, both as a science and an art, and must be proficient in spelling, punctuation, idiom and division into paragraphs. Preparation must include the work in English prescribed by the various college associations.

Each student must be able to pass an examination upon ten books selected from the list prescribed by the college entrance associations. The following ten are recommended: Shakespeare's Julius Cæsar, and The Merchant of Venice; The Sir Roger de Coverly Papers; Goldsmith's The Deserted Village; Scott's Ivanhoe; Hawthorne's The House of the Seven Gables; Irving's Sketch Book; Ruskin's Sesame and Lilies; Lowell's The

Vision of Sir Launfal; Longfellow's Courtship of Miles Standish.

In addition to the above a thorough study of each of the works named below is required. The examination will be upon subject matter, form and structure.

Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso and Comus; or Tennyson's Idylls of the King; Burke's Speech on Conciliation with America, or Washington's Farewell Address and Webster's Bunker Hill Oration; Macaulay's Life of Johnson, or Carlyle's Essay on Burns.

**MATHEMATICS.** 3 units or 15 counts, viz: Elementary Algebra including fundamental operations, factoring, fractions, ratio, proportion, radicals, quadratics, Plane Geometry, including the straight line, angle, circle, proportion, similarity, and areas. Solid Geometry and Plane Trigonometry.

**FOREIGN LANGUAGE.** 2 units or 10 counts. Any one language may be offered.

The candidate will be expected to have a practical knowledge of pronunciation, as well as a thorough mastery of grammatical forms and syntax, and to possess a familiarity with the literature in proportion to the amount of work offered.

**DRAWING.** 1 unit or 5 counts. A year's course in Drawing.

**SCIENCE.** 3 units or 15 counts.

**ELECTIVE.** 3 units or 15 counts.

#### SUMMARY

English	3	units	or	15	counts
Mathematics	3	"	"	15	"
Foreign Language	2	"	"	10	"
Drawing	1	"	"	5	"
Science	3	"	"	15	"
Elective	3	"	"	15	"
Total	15	"	"	75	"

[b] To the Course in Applied Arts

ENGLISH. 3 units or 15 counts, the same as to the course in Ceramic Engineering.

MATHEMATICS. 2 units or 10 counts.

FOREIGN LANGUAGE. 2 units or 10 counts. Any one language may be offered.

SCIENCE. 2 units or 10 counts.

HISTORY. 2 units or 10 counts.

ELECTIVE. 4 units or 20 counts.

SUMMARY

English	3	units	or	15	counts
Mathematics	2	"	"	10	"
Foreign Language	2	"	"	10	"
Science	2	"	"	10	"
History	2	"	"	10	"
Elective	4	"	"	20	"
Total	15	"	"	75	"

Admission is gained either on certificates or on examination, as follows:

Admission on Certificate

REGENTS' CREDENTIALS. The credentials of the University of the State of New York are accepted instead of an examination in the subjects required for admission, so far as they cover these requirements. [For description of subjects, see *Entrance Requirements*.]

PRINCIPAL'S CERTIFICATE. Certificates are also received from principals of preparatory or high schools outside of New York State, provided such schools are known to the faculty for thoroughness of instruction. Such certificate must specify, in connection with each subject, the extent to which it has been pursued, by giving the text-book used, the method of instruction, the amount of time given to it, the date of the final examination, the degree of the applicant's proficiency, and must clearly show

that the student has met the requirements in every detail. The school furnishes blank forms for such certificates upon application of principals of approved schools.

Principals of preparatory schools who desire to have their students admitted on certificate are invited to correspond with the director.

### Admission on Examination

Candidates who fail to present satisfactory certificates must pass a written examination in the required subjects. Examinations in all subjects required for admission are held at Alfred at the beginning of the year. Candidates must report at the director's office and obtain permits for examination. The result of the examination may be obtained from the director.

### Conditioned Students

No student can enter the freshman class conditioned in more than two academic subjects. These conditions must be removed within one year.

### Admission to Advanced Standing

Students from other schools, having a course equivalent to that of the New York State School, may enter at the point from which they take dismissal, upon presentation of satisfactory certificates of standing and character, including an honorable dismissal.

### Senior Thesis

There is required of each candidate for a degree a thesis, for which credit is given, two hours in the first semester and three in the second semester of the Senior year. The title of the thesis must be chosen in the field of Ceramics not later than November 1, and must be approved by the director. The thesis shall embody the re-

sults of actual independent research, and must be submitted for approval not later than May 1. A type-written copy must be deposited with the director.

## Graduation

While no student will be permitted to graduate with a smaller credit than one hundred and forty semester hours, four full years of resident work will be required in either course. Upon students who satisfactorily complete the course in Ceramic Engineering, Alfred University will confer the degree of Bachelor of Science in Ceramic Engineering, and upon students who satisfactorily complete the course in Applied Arts the degree of Bachelor of Applied Arts.

# Courses of Study

All the studies in the courses leading to a degree are required for all the four years. Credit is given of one hour for each hour spent in lectures or recitations and of one hour for each laboratory period of two or three hours as required.

## Course in Ceramic Engineering

### First Year

	Semester	Hours
Mathematics 4, Algebra		3
Chemistry 1, General Chem. Lect. and Lab.		3
German		3
English 1, English Comp. and Rhetoric		3
Ceramics 1, Lecture and Laboratory		2
Ind. Mechanics 1, Elementary Drafting		1½
Ind. Mechanics 5, Wood Working		1
Physical Training 1,		1
Ethics 1,		½
		18

### Second Year

Mathematics 5, Analytical Geometry	3
Physics 1, General Physics	5
Chemistry 2, Qualitative Analysis	3
German	3
Ceramics 2, Lecture and Laboratory	4
	18

### Third Year

Mathematics 6, Calculus	3
Chemistry 3, Quantitative Analysis	3
Chemistry 6, Physical Chemistry	2
Ceramics 3, Lecture and Laboratory	4
Ceramics 4, Industrial and Ceramic Calculations	2
Geology 1 and 3, General and Economic Geology	2
Ind. Mechanics 2, Drafting, Advanced	1
	17

Fourth Year

<i>M. W. 2 - 4</i>	Mathematics 7, Surveying	2
<i>W. 12. M. M. 3. 2 - 4</i>	Chemistry 4 and 5, Tech. Cer. Chem.; Gas and Fuel Analysis	3
<i>M. W. 11</i>	Ceramics 5, Lecture, Glass	2
<i>T. F. 10 - 1</i>	Ceramics 6, Physical-Chemical Measurements	2
<i>J. Th. 9 Th. 10 - 1</i>	Ceramics 7, Lecture and Laboratory, Limes, Plasters and Cements	2
	Ceramics 10, Thesis	2
	Industrial Mechanics 4, Machine and Kiln Design	1½
	Industrial Mechanics 8, Machine Shop Practice	1½
		<u>17</u>

Course in Applied Arts

First Year

		Semester Hours
Drawing 1, Studio Practice		2
Modeling 1, Studio Practice		2
Design 1, Lecture and Studio		2
Ceramics 1, Lecture		1
English 1, English Composition and Rhetoric		3
Modern Language		3
Chemistry 1, General Chemistry, Lecture and Lab.		3
Physical Training 1		1
Ethics 1		½
		<u>17½</u>

Second Year

Drawing 2, Studio Practice	3
Modeling 2, Studio Practice	2
Design 2, Lecture and Studio	3½
Ceramics 2, Lecture and Laboratory	4
English 8,	2
Modern Language	3
Physical Training	½
	<u>18</u>

Third Year

Drawing 3, Studio Practice	3
Modeling 3, Studio Practice	3
Design 3, Lecture and Studio	3
Ceramic Craft 2, Lecture and Studio	2
Artistic Anatomy, Lecture and Studio	2
History of Art, Lecture	2
Industrial Mechanics 1, Elementary Drafting	1½
Ceramics 8, Laboratory	2
	<u>18½</u>

Fourth Year

Drawing 4, Studio Practice	2
Modeling 4, Studio Practice	3
Design 4, Lecture and Studio	3
Composition, Lecture and Studio	2
Chromatics, Studio Practice	2
Ceramics 9, Laboratory	2
Thesis	2
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# Short Courses

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Short courses of two years each are offered and are intended to meet the needs of persons who are unable to qualify for a course leading to a degree. Applicants must be at least 18 years of age and must give evidence of ability to receive instruction.

While these courses are carefully planned so as to make the best possible use of the time available, it is hoped that no student will rest content with a short course if the requirements for entrance to a four years' course can possibly be met.

## Short Course in Clay-Working

	First Year	Semester Hours
Mathematics		3
Chemistry 1, General Chemistry, Lecture and Lab.		3
English 1,		3
Ceramics 1,		2
Ceramics 2,		4
Industrial Mechanics 1,		1½
Industrial Mechanics 5,		1
Physical Training 1.		1
Ethics 1,		½
		18
	Second Year	
Chemistry 2, Qualitative and Quantitative Analysis		3
Physics 1,		5
Ceramics 3,		4
Ceramics 4,		2
Industrial Mechanics 2,		1½
Industrial Mechanics 4,		1½
Industrial Mechanics 8,		1½
		18½

For particulars of the courses see the description of the courses in Ceramic Engineering.

## Short Course in Normal Art

### First Year

	Studio Hours
Drawing 1, Studio Practice (same as in Applied Arts)	6
Design 1, Lecture and Studio (same as in Applied Arts)	6
Modeling 1, Studio Practice	6
Public School Drawing 1, Studio Practice	6
Mechanical Drawing, Studio Practice	6
	<hr/>
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### Second Year

Drawing 2, Studio Practice (same as in Applied Arts)	9
Public School Drawing 2, Studio Practice	6
Normal Training, Lecture and Studio	9
History of Art, Lectures and Recitations	6
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	30

For detailed information as to the courses in Mathematics, Modern Languages and English see the College Catalogue of Alfred University.

# Departments of Instruction

## DESCRIPTION OF COURSES

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### Ceramics

Professor Binns

Professor Montgomery

1. Lectures on the origin, properties and uses of clays and other ceramic materials. Types of ware and methods of manufacture. Elementary glaze composition.

Laboratory practice in the operations involved in manufacture. The preparation and use of forms, molds and dies. Making saggers, jiggering, pressing and casting pottery. Making brick and tile. The general use of the machine equipment.

First year. One hour lecture and three hours laboratory. *Two hours.*

Professor Binns, Professor Montgomery.

2. Lectures on the occurrence, classification and identification of clays. The manufacture of all classes of ceramic products. The theory and practice of drying and burning. The compounding of clay mixtures, and the production and use of glazes and colors. The glaze formula.

Laboratory practice in clay testing. The measurement of the physical properties of clays and the compounding of bodies and glazes. Kiln firing.

Second year. Two hours lecture and six hours laboratory. *Four hours.*

Professor Binns.

3. Lectures on the winning and preparation of clays. The technology of the ceramic industries. The mineralogical, chemical and physical changes which take place in clays, bodies and glazes during their preparation, drying and burning. The theory and practice of pyrometry.

Laboratory practice in the production and application of slips, engobes, enamels, glazes and colors. The production, decoration and firing of finished wares.

Third year. Two hours lecture and six hours laboratory. *Four hours.*

Professor Binns, Professor Montgomery.

4. Lectures with recitations on the calculations involved in the mixing and blending of ceramic materials in bodies, glazes and colors. The use of analyses. The designing of series for glaze study. Chemical and physical problems in volume relations, heat, combustion and the calorific value of fuels.

Third year. Two hours recitations. *Two hours.*

Professor Montgomery.

5. Lectures on the raw materials, preparation, compounding and manufacture of the various types of glass. The history of glass, its uses, and the methods employed in its decoration.

Fourth year. Two hours lectures. *Two hours.*

Professor Binns.

6. Laboratory practice with occasional lectures in the application of physical chemistry to ceramic problems. Viscosity and deflocculation. Colloids and the fineness of grain. Specific gravity and porosity. The use of the electric furnace in the study of dehydration, lag curves, melting points, deformation points, eutectics, and the viscosity of fused minerals and mineral mixtures.

Fourth year. Six hours laboratory. *Two hours.*

Professor Montgomery.

7. Lectures on the raw materials, preparation, compounding and manufacture of limes, plasters, natural and Portland cements. The theory of hydraulicity and the reactions involved in manufacture. Methods of testing.

Laboratory practice in the production of lime, plaster and cement and the study of their physical properties.

Fourth year. Two hours lecture and three hours laboratory. *Three hours.*

Professor Montgomery.

8. Laboratory practice for art students. The production of form by molding. The preparation of glazes for decorative pottery.

Second year. Six hours laboratory. *Two hours.*

Professor Binns, Miss Binns.

9. Laboratory practice in continuation of course 8. The preparation and use of underglaze colors. Glazes for colors. Colored glazes. The use of the potter's wheel.

Third year. Six hours laboratory. *Two hours.*

Professor Binns, Miss Binns.

10. Thesis.

Fourth year. Six hours laboratory. *Two hours.*

Professor Binns, Professor Montgomery.

## Chemistry

Professor Bole

Professor W. A. Titsworth

CHEMISTRY I. A thorough course in the theory and principles of the science of chemistry, covering Alexander Smith's College Chemistry. It is supposed that students entering this course shall have had high school physics, and preferably high school chemistry. Lecture and recitations *two hours*, laboratory *one hour*.

2. **QUALITATIVE ANALYSIS.** The detailed separation of the metals, non-metals and acid radicals. The student is required to apply the theory learned in course 1 and to explain the reason for each reaction. The ionic theory, solubility product, law of concentration, hydrolysis, amphoteric hydroxides, etc., are studied and application made in the separations. A laboratory course consisting of four hours of laboratory work a week throughout the year, with one hour lecture. Text-book, Stieglitz. Prerequisite, course 1 or its equivalent. *Three hours.*

3. **QUANTITATIVE ANALYSIS.** A laboratory course of four hours with a weekly lecture throughout the year. The work embraces the principal methods of gravimetric, volumetric and electro-chemical analysis, and the use of the reference works and the chemical journals. This course gives quantitative application of the laws which are studied qualitatively in course 2. Prerequisites, courses 1 and 2. *Three hours.*

4. **TECHNICAL ANALYSIS.** Lectures and laboratory work. The analysis of silicate and carbonate rocks is carried out in detail. The student is given the opportunity to compare different methods of analysis rather than to follow any specified method. Prerequisites, courses 1, 2 and 3. *Three hours. I.*

5. **GAS AND FUEL ANALYSIS.** One hour lecture and four hours laboratory. The complete analysis of flue, illuminating and natural gases is carried out in the laboratory. The study of the various fuels is taken up and different samples are analyzed by the student. The student is taught to use the Orsat & Hemphill apparatus and the Parr Calorimeter. Prerequisites, courses 1, 2, 3, 4. *Three hours. II.*

6. PHYSICAL CHEMISTRY. Introduction to the concepts of modern physical chemistry. The first semester is taken up with a detailed study of the quantitative laws governing gases, liquids, solids, and substances in solution.

During the second term a study of the phase rule and electro-chemistry is taken up and a detailed study of the laws of chemical equilibrium and applications of the same are carried out. Prerequisites, courses 1 and 2. *Two hours.*

## Physics

Professor W. A. Titsworth

1. GENERAL PHYSICS. A course in general physics for those who have had high school physics. The student should have studied algebra, geometry, and plane trigonometry. Three hours a week, lectures and recitations, and one two-hour period of laboratory work. Special emphasis is laid upon the application of the principles studied in the course to nature and to daily life. In the laboratory typical experiments are performed by the student. The lectures are illustrated by experiments as far as possible. First semester, mechanics, sound and heat. Second semester, electricity and light. Text-book, Kimball's College Physics. *Five hours.*

2. PRACTICAL PHYSICS. This is a laboratory course intended for those who have had a course in College Physics without the corresponding laboratory work. It will consist of two double laboratory hours a week and will cover the same experiments as pursued by course 1. Occasionally a lecture, or a recitation to work problems and discuss the principles, will be substituted for the laboratory. During the second semester some advanced experiments will be given. *Two hours.*

3a. **LIGHT AND HEAT.** An advanced course in these subjects following some standard texts such as Edser's. Open to those who have had course 1. *Three hours. I.*

3b. **MAGNETISM AND ELECTRICITY.** An advanced course in these subjects open to students who have had course 1. The work will be somewhat technical before the close of the semester. *Three hours. II.*

## Industrial Mechanics

Professor Crandall

1. **ELEMENTARY DRAFTING.** Open to all regular and special students of the college. Elementary principles, geometric problems, projections, etc. *Two hours, counting one and one-half hours.*

2. **ADVANCED DRAFTING.** Open to those who have completed the first year's work and solid geometry. Descriptive geometry, shades, shadows, and perspective, with their applications. *Two hours, counting one and one-half hours.*

3. **DESCRIPTIVE GEOMETRY.** Taught both by class exercises, in which the student demonstrates the various problems, and by instrumental solution in the drafting room, in which he makes accurate drawings illustrating these problems. This course includes the principles of shades, shadows, and perspective, all developed according to mathematical principles. *Two hours.*

4. **MACHINE OR ARCHITECTURAL DRAFTING.** Prerequisites, courses 1, 2, and 3. This course develops complete sets of working drawings, including bills of materials and estimates of either machine, architectural, or manual training subjects as the student may elect. *Two hours, counting one and one-half hours.*

5. WOOD-WORKING. An elementary course the purpose of which is to teach the students the intelligent use of the more common hand tools used in the shop, the care and the proper methods of sharpening them, and the correct method of making the principal joints used in carpentry and cabinet-making. As soon as each kind of joint is thoroughly understood, the student is taught its practical use in making a piece of furniture or apparatus. Special stress is placed on accuracy and neatness of workmanship, so that the student may early learn the necessity of careful, painstaking efforts in order to accomplish good results. *Two hours, counting one hour.*

6. PATTERN-MAKING. Prerequisite, course 5 or its equivalent. This course aims to give the student the elements of practical wood pattern-making. Each article made is to be a practical pattern which may be successfully cast in any foundry. The work is made very technical so that the student may become acquainted with actual shop methods so far as it is possible in a school shop. Accuracy and first-class workmanship are essential for success in this course. *Two hours, counting one and one-half hours.*

7. FORGING. Prerequisites, courses 5 and 6, or their equivalent. A practical course in the drawing, welding, and bending of iron for any purpose. The management of the fire and the forge is considered of first importance in this course. A large variety of articles in both iron and steel is made during the year, the work in steel coming the latter part of the year. Such tools are made from steel as cold chisels, lathe and planer tools, and special tools for special purposes. At frequent intervals during the year lectures and demonstrations are given on such subjects as the structure and manufacture of steel and iron, welding compounds, commercial shop methods, tempering, annealing, etc. *Two hours, counting one hour.*

8. MACHINE SHOP PRACTICE. Prerequisites, courses 5 and 6, or their equivalent. This course consists of exercises in chipping, filing, and fitting, lathe and planer works, and operations on the drill press. Skill in manipulation is not sought so much as a working knowledge of methods, a familiarity with the limitations and possibilities of the tools, and a greater insight into the practical, productive, and commercial side of shop methods and management. To this end, occasional lectures are given throughout the year on such subjects as commercial machine shop methods, time keeping systems, piece-work and premium plans, cost keeping, and stock room management. *Two hours, counting one and one-half hours.*

## Applied Arts

Miss Binns

Miss Greenwood

### Drawing

1. Freehand drawing; perspective. Charcoal drawing from the antique. Detail of figure and full figure from cast.

First year. Six hours studio. *Two hours.*

Miss Greenwood.

2. Drawing from the antique continued. Drawing from life. Painting from still-life and flowers.

Second year. Nine hours studio. *Three hours.*

Miss Greenwood.

3. Water color painting from still life. Drawing and painting from life. Pastel, pen and ink, and pencil rendering.

Third year. Nine hours studio. *Three hours.*

Miss Greenwood.

4. Drawing and painting from life.

Fourth year. Six hours studio. *Two hours.*

Miss Greenwood.

## Modeling

1. Elementary modeling from the cast. Time sketches of ornament. Simple ornament from original designs. Principles and practice of plaster-casting in relief. Modeling for terra cotta.

Pottery building. Decoration of pottery by incising, inlaying and slip painting.

First year. Six hours studio. *Two hours.*

Miss Binns.

2. Modeling from the antique. Time sketches of ornament. Plaster casting in the round. Modeling for terra cotta from original designs. Decorative panels.

Pottery building. Decoration of pottery by incising, inlaying, and modeling.

Second year. Six hours studio. *Two hours.*

Miss Binns.

3. Modeling in relief from the antique and life. Time sketches in clay. Modeling for terra cotta from original designs. Decoration of wheel-made pottery by modeling, by underglaze, inlaid glazes.

Third year. Nine hours studio. *Three hours.*

Miss Binns.

4. Modeling from life. Application of the figure to modeled decoration. Working out of such problems as sundials, fountains. Decorative panels for terra cotta. Advanced work in pottery decoration.

Fourth year, Six hours studio. *Two hours.*

Miss Binns.

## Design

1. Designing of geometric ornament. The study of historic ornament. The designing of simple ornament in historic styles. Application of ornament to surface patterns, tiles, pottery, mosaics, etc.

First year. One hour lecture, four hours studio.  
*Two hours.*

Miss Greenwood.

2. Application of ornament continued. Illuminating, book decoration, lettering, textiles, etc. Development of color.

Second year. One hour lecture, eight hours studio.  
*Three and one-half hours.*

Miss Greenwood.

3. Design as applied to Ceramics. Modeled designs. Wall-paper. Illuminating and "stained" glass, etc.

Third year. Nine hours studio. *Three hours.*

Miss Greenwood.

4. Architectural design. Application of ornament continued. Professional rendering.

Fourth year. Nine hours studio. *Three hours.*

Miss Greenwood.

### Ceramic Craft

Study and production of ceramic wares. Relation of use and beauty. Hand and machine work. Professional rendering.

Third year. One hour lecture and five hours studio.  
*Two hours.* Miss Binns, Miss Greenwood.

### Artistic Anatomy

Lectures dealing with the bones and muscles of the body, illustrated with analytical drawings. Construction of anatomical figure from memory.

Third year. One lecture, three hours studio. *Two hours.* Miss Greenwood.

### Chromatics

Study of color. Oil painting. Still-life. Landscape.

Fourth year. Six hours studio. *Two hours*

Miss Greenwood.

### Composition

Study of the laws of composition. The use of the figure in decoration. Application to book illustration, terra cotta, etc.

Fourth year. One hour lecture, five hours studio.  
*Two hours.* Miss Greenwood, Miss Binns

### History of Art

Lectures and recitations illustrated with photographs and slides, on the history of arts and the appreciation of beauty. The beginnings of art. Egyptian, Greek and Roman art. The arts and crafts of the Middle Ages. The painting and sculpture of the Renaissance, Modern Art. Reinach's "History of Art Throughout the Ages," is used as a text-book with supplementary reading and keeping of note-books.

Third year. Two hours recitations. *Two hours.*  
Miss Binns

### Normal Art

Miss Binns  
Miss Greenwood

### Drawing

1. Same as Drawing 1 in Applied Arts Course.  
First year. Six hours studio.  
Miss Greenwood
2. Same as Drawing 2 in Applied Arts Course.  
Second year. Nine hours studio.  
Miss Greenwood

### Design

Same as Design 1 in Applied Arts Course.  
First year. One hour lecture, four hours studio.  
Miss Greenwood

### **Modeling**

Elementary modeling from the cast. Modeling from memory of animals, etc. Story illustration. Sand table work. Simple decorated tiles, pottery, etc.

First year. Six hours studio. Miss Binns

### **Public School Drawing**

1. Exercises in blackboard drawing. Pencil drawing from nature. Time sketches. Pose drawing. Exercises in teaching.

First year. Six hours studio. Miss Binns

2. Exercises in blackboard drawing. Pencil drawing of animals, plants, etc. Illustrative drawing. Memory sketching.

Second year. Six hours studio. Miss Binns

### **Mechanical Drawing**

Geometric problems. Use of instruments. Reading of working drawings. Working drawings from freehand sketches. Perspective sketching from plan. Drawing to scale.

First year. Six hours studio.

Miss Greenwood, Miss Binns

### **Normal Training**

Lectures on the theory of teaching, methods of criticism, methods of supervision. Observation of work in local schools. Working out of art problems for the grades and High School. Keeping of note-books and portfolios of work. Exercises in teaching.

Second year. One hour lecture, six hours studio.

Miss Binns

### **History of Art**

Same as in Applied Arts course.

Second year. Two hours lecture and recitations.

Miss Binns

# Department of Investigation and Research

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## Clay Testing

Professor Binns

The State School of Ceramics is fitted and the experts in charge are qualified, for the professional examination and testing of clays for economic purposes. Such clays may be classified under the following heads:

- (a) Kaolin, white burning residual clay.
- (b) Kaolin, white burning, washed for market, used in the manufacture of pottery, porcelain and paper.
- (c) Ball clay, white or cream burning, sedimentary clay of high plasticity, used in pottery manufacture.
- (d) Stone ware clay, gray or cream burning, more or less sandy in character, used in stone ware manufacture.
- (e) Fire clay, buff or white burning, refractory, used for manufacture of fire brick.
- (f) Brick clay, including colored clays and shales, used for the manufacture of brick and tile of various qualities and descriptions.

For each of the above classes special tests are necessary, and the charges made are proportionate to the work required.

A report upon each sample will be furnished and must be understood to refer only to the samples submitted unless the experts are instructed to examine the deposit and prepare their own samples, in which case special charges will be made. The report includes physical tests, and chemical analysis where necessary.

Advice as to washing or other preparation of the clay is also given, together with an opinion as to the industry to which the material may be applied.

## Industrial Problems

Professor Binns

Professor Montgomery

The problems incidental to the manufacture of clay wares are regularly investigated at the school. Manufacturers are invited to present questions for study. Persons resident within the state are entitled to reasonable services without charge.



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UNIVERSITY PUBLICATIONS

SEVENTY-NINTH YEAR—No. 2

# The New York State School of Clay-Working and Ceramics



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1914-1915

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## **BOARD OF MANAGERS**

(Appointed annually by the Trustees of Alfred University)

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**V. A. BAGGS**      **D. S. BURDICK**

# Calendar

## FIRST SEMESTER, 1914-1915

		1914
Registration, Entrance Examinations	Wednesday	Sept. 16
Instruction begins	Thursday	Sept. 17
<b>Election Day</b>	<b>Tuesday</b>	<b>Nov. 3</b>
<b>Thanksgiving Day</b>	<b>Thursday</b>	<b>Nov. 26</b>
Recess	Friday	Nov. 27
Holiday Recess begins	Wednesday evening	Dec. 23

### HOLIDAY RECESS

		1915
Instruction resumed	Wednesday morning	Jan. 6
Midyear Examinations begin	Wednesday	Jan. 20
Examinations end, Semester ends	Tuesday	Jan. 26

## SECOND SEMESTER, 1914-1915

Semester begins	Tuesday	Jan. 27
Spring Recess begins	Tuesday evening	Mar. 23

### SPRING RECESS

Instruction resumed	Wednesday morning	April 7
<b>Memorial Day</b>	<b>Sunday</b>	<b>May 30</b>
Final Examinations begin	Monday	May 31
Examinations end	Friday	June 4
Degrees conferred at University Commencement	Thursday	June 10

## FIRST SEMESTER, 1915-1916

		1915
Registration, Entrance Examinations	Wednesday	Sept. 15
Instruction begins	Thursday	Sept. 16
<b>Election Day</b>	<b>Tuesday</b>	<b>Nov. 2</b>
<b>Thanksgiving Day</b>	<b>Thursday</b>	<b>Nov. 25</b>

### RECESS

Holiday Recess begins	Wednesday evening	Dec. 22
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### HOLIDAY RECESS

		1916
Instruction resumed	Wednesday morning	Jan. 5
Midyear Examinations begin	Wednesday	Jan. 19
Examinations end, Semester ends	Tuesday	Jan. 25

## SECOND SEMESTER, 1915-1916

Semester begins	Wednesday	Jan. 26
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# Faculty

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BOOTHE COLWELL DAVIS, A. M., Ph. D., D. D., President,  
Professor of Ethics.

CHARLES F. BINNS, Sc. M., Director,  
Professor of Ceramics.

EARLE T. MONTGOMERY, E. M. in Cer., Assistant Director,  
Associate Professor of Ceramics.

ALPHEUS B. KENYON, Sc. D., Registrar,  
Professor of Mathematics.

PAUL E. TITSWORTH, Ph. D.,  
Professor of Modern Languages.

JAMES D. BENNEHOFF, Sc. M.,  
Professor of Natural Science.

LINTON B. CRANDALL, Sc. B.,  
Professor of Industrial Mechanics.

WALDO A. TITSWORTH, Sc. M.,  
Professor of Physics.

GEORGE ADDISON BOLE, A. M.,  
Professor of Chemistry.

KATHERINE H. PORTER, A. M.,  
Associate Professor of English.

M. ELSIE BINNS,  
Associate Professor of Modeling and Pottery.

CLARA C. GREENWOOD,  
Associate Professor of Drawing and Design.

A. L. WHITFORD,  
Janitor and Machinist.

# New York State School of Clay-Working and Ceramics

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In the field of applied science and commercial engineering the subject of clay-working is becoming daily more important. To the architect and builder clay offers the most satisfactory fireproof material, to the housewife pottery is indispensable and to the artist clay and clay-wares afford at once a facile means of expression and a prominent feature of home decoration.

The problems which confront the clay-worker are unique. He must learn to win his material economically from the earth, to shape his wares with due regard to both utility and art, to glaze or otherwise finish them in a satisfactory manner and to burn the whole successfully upon a large scale. His education must therefore be comprehensive and complete. He must, in a word, be a specialist, and to this end the New York State School was established.

Chapter 383, Laws of New York State, 1900, provided for the construction and maintenance of the school, and in order to secure the necessary facilities for collateral branches of study Alfred University was chosen as the location.

For this work the University offers great advantages. Laboratories of chemistry and physics, libraries, museums of geology and natural history, workshops for manual training, and all the departments of general culture are available, so that the many and varied requirements of a liberal education are fully met.

The State of New York contains vast deposits of clays and shales at present lying dormant. It also contains large numbers of young men and women who are seeking profitable em-

ployment. The work of the school is to bring these together. Neither the science nor the art is neglected. Attention is given to the improvement of methods of manufacture and the reduction of cost so that the resources of the State may be fully developed and that within its borders may be manufactured the clay-wares, both coarse and fine, necessary for its own consumption.

## Building and Equipment

The building of the New York State School of Clay-Working and Ceramics has been especially designed for the purposes of the school, and is located on land which was deeded by Alfred University to the people of the State of York. It is built of red brick and terra cotta with gray trimmings and roofed with brown tile. The main building has a floor space of about thirteen thousand square feet, and a frontage of seventy-five feet.

To this has been added a fireproof wing measuring about 36 by 57 feet and three stories in height.

In the main basement are located a full battery of kilns, the heavy machinery for the manufacture of brick, tile, hollow blocks and roofing tile, the slip-making plant, cylinders for glaze preparation, and a workshop fitted with modern appliances for pottery and porcelain manufacture. There are also rooms for mold making and drying.

In the sub-basement are located the heating plant and fuel storage and a damp cellar.

On the principal floor are the executive offices, the technical laboratory, a lecture room, a room for furnaces, the chemical laboratory and balance room and a special kiln room for the Art department. On the second floor is the department of Design and Applied Art and on the third floor a lecture room and a studio for advanced work.

The motive power is supplied by two Otto gas engines of 36 and 8 horse power, respectively.

## Courses Offered

The courses of study which lead to a degree extend over a period of four years and embrace the science, technology and art special to clay-working. All the subjects are required, but the ceramic work is elective as to the particular branch of clay-working to be followed.

The course in Ceramic Engineering is designed to qualify men to occupy positions as superintendents, scientific experts and ceramic chemists.

The course in Applied Arts is intended to fit the student for the designing and producing of artistic pottery.

## Benefits of the School

The demand for trained clay-workers has grown to considerable proportions during the last few years. Capital is becoming more and more interested in the development of clay lands and shale banks; nor is there any likelihood that this interest will decrease.

On the other hand the number of men who have studied in schools is very small compared with the openings to be filled. Hitherto, no student who has passed through the school successfully has remained unemployed, and the director is continually in receipt of applications for persons qualified to fill responsible positions. Every effort is made by the faculty to place the students in communication with manufacturers desiring to offer them employment.

The student successfully pursuing the technical course will be able, presuming that his personal capacity is good, to take up the practical work of manufacturing clay wares. He will have had experience with every description of clay, and with the minerals and oxides used in preparing bodies and glazes. He will have acquired a knowledge of machinery and kilns which he will find of the greatest value; in short, he will be a trained man as regards the problems of clay-working.

Students who conscientiously pursue the course in applied

art will be able to design and make artistic pottery, preparing their own clays and compounding their own glazes, if necessary.

## Physical Training

The aim of the work in physical training is to bring the whole body to its normal condition, to acquire ease and precision in movement, and to develop the health and strength of the student.

GYMNASIUM. The gymnasium is on the lower floor of Babcock Hall. It is equipped with chest weights, dumb bells, wands, Indian clubs, horizontal and parallel bars, rings, poles and floor mats. A dressing-room with individual lockers, a well equipped bathroom with shower baths, and two handball courts are provided. The gymnasium is in charge of the physical director. All students, unless excused by the director on the advice of a physician, are required to do two semester hours of work during the freshman year and one during the sophomore year, under the direction of the instructor in physical training.

ATHLETIC FIELD. The athletic field embraces over three acres of level land. All intercollegiate contests in football, baseball, and track athletics are held on this field. The field affords a running track (one-sixth of a mile). Appropriate apparatus for field sports is provided.

OUTDOOR SPORTS, including tennis, are in the immediate charge of the athletic association, which has a football team playing under intercollegiate rules, a baseball nine, and a basket ball team. For tennis there are excellent courts and an annual tournament is maintained. Athletics, however, are not carried to extremes. The committee on athletics from the faculty, and the graduate manager exercise general supervision, for it is the purpose of the university to give due attention to the physical welfare of its students, and at the same time keep the physical in proper relation to the intellectual and moral development.

## Fees per Semester

ATHLETIC FEE .....	\$2 00
READING ROOM FEE.....	1 00
EXTRAS, for use of instruments and laboratory materials:	
Gymnasium fee (all Freshmen).....	1 00
Surveying .....	4 00
Chemistry Breakage Deposit, per year, Chem. 1.....	2 00
Chemistry Breakage Deposit, per year, Chem. 2, 3, 4, 5.....	5 00
Elementary Chemistry .....	4 00
Blowpipe Analysis and Mineralogy.....	4 00
Qualitative Analysis .....	5 00
Quantitative Analysis, Advanced Quantitative Analysis or Clay Analysis .....	5 00
Physics 1, Laboratory.....	1 50
Advanced Physics, Laboratory.....	2 50
Shop Fee .....	4 00
GRADUATION FEE .....	5 00

No tuition is charged to students who are prepared to enter the regular courses, but no student is entitled to free tuition in any college class not forming part of a course in the School of Ceramics nor are students registered in the college entitled to free tuition in the School of Ceramics in respect of any subject for which college credit is given.

Bills will be presented by the third Friday of the semester, and must be paid at the office of the treasurer by the fifth Friday of the semester.

## Rooms and Board

Rooms and board for women can be had at Ladies' Hall, and rooms for men at Burdick Hall, at the following rates:

Rooms, furnished, per semester.....	\$10 00 to \$24 00
Board, per week.....	4 00

All rooms are fitted with gas fixtures for heating and lighting. Gas is paid for according to amount used at 35c per thousand.

Board is furnished to men at Burdick Hall on the co-operative plan.

Rooms and board, including fuel, can be obtained in private families at from \$3 to \$5 per week. Board in clubs, organized and managed by the students themselves, varies from \$2.90 to \$3.50 per week, according to the means and inclinations of the members.

## Estimated Annual Expenses

Excluding cost of clothing and travel, one can go through a college year by close economy upon \$215 and by exercising care, upon \$240. An allowance of \$275 is comfortable, and \$350 is liberal.

Board, \$2.90 to \$4.00 per week.....	\$104 00 to \$144 00
Rooms, \$10.00 to \$24.00 per semester.....	20 00 to 48 00
Gas, \$4.00 to \$7.00 per year.....	4 00 to 7 00
Laundry, per year.....	12 00 to 20 00
Books .....	10 00 to 25 00
Lyceum dues, etc.....	2 00 to 10 00
Incidentals and extras.....	25 00 to 35 00
<hr/>	
Total for year.....	\$177 00 to \$289 00

## Self-Support

Many of the graduates have been persons of very limited means who worked their way through college. While the school cannot guarantee work to all applicants, enterprising students can usually find employment in the town with satisfactory compensation for all the time they can profitably spare from their studies. Some earn enough to meet the greater part of their expenses. Students should distinctly understand that when they attempt entire self-support they should lengthen their term of study.

## Terms and Vacations

The school year consists of two terms, or semesters, of about eighteen weeks each. There is a vacation at the holidays of about two weeks; a short recess at Easter time; and a summer vacation of about fifteen weeks.

## **Class Exercises**

The class exercise period is one hour in length; in laboratory work, however, the class exercise continues through two or more hours, as the case may be. There are no class exercises on Saturday or Sunday. The schedule of recitations is fixed by the faculty. Any student who fails to attain a standing of at least sixty per cent in a given subject will not receive credit in that subject. Any student failing to receive credit for ten semester hours in any given semester will be subject to dismissal.

## **Unit or Measure of Credit**

One class exercise per week for one term or semester, is taken as the unit or measure of credit, and is termed a semester hour. In each course leading to a degree one hundred and forty semester hours are required.

## **Absences and Excuses**

It is expected that no student will be absent from any college exercises except in case of necessity. Excuses for absences from class exercises are made to a committee of the faculty known as the committee on absences. All excuses are granted with the understanding that the work missed will be made up to the satisfaction of the instructor. Each unexcused absence deducts one per cent from the final standing for the semester, or two per cent if occurring within three days immediately preceding or following a recess or vacation.

## **Examinations**

Final examinations are held at the close of each semester in addition to occasional written tests during the semester. Fees will be charged for all examinations taken by those not regular members of classes, or at other times than those appointed for the class examinations.

# Admission

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Candidates for admission to the freshman class must be at least fifteen years of age and must present certificates of good moral character. The particular requirements for entrance are explained below. Preparatory work may be estimated either in "units" or in New York State regents "counts." The "unit" represents a course of five recitations weekly throughout an academic year of the preparatory school. The regents "count" represents one recitation weekly for one year. Fifteen "units" or seventy-five "counts" must be offered.

## Entrance Requirements

### [a] To the Course in Ceramic Engineering

ENGLISH. Three units or 15 counts. The candidate must be familiar with elementary rhetoric, both as a science and an art, and must be proficient in spelling, punctuation, idiom and division into paragraphs. Preparation must include the work in English prescribed by the various college associations.

Each student must be able to pass an examination upon ten books selected from the list prescribed by the college entrance associations. The following ten are recommended: Shakespeare's *Julius Cæsar*, and *The Merchant of Venice*; *The Sir Roger de Coverly Papers*; Goldsmith's *The Deserted Village*; Scott's *Ivanhoe*; Hawthorne's *The House of the Seven Gables*; Irving's *Sketch Book*; Ruskin's *Sesame and Lilies*; Lowell's *The Vision of Sir Launfal*; Longfellow's *Courtship of Miles Standish*.

In addition to the above a thorough study of each of the works named below is required. The examination will be upon subject matter, form and structure.

Shakespeare's *Macbeth*; Milton's *L'Allegro, Il Penseroso* and *Comus*; or Tennyson's *Idylls of the King*; Burke's *Speech*

on Conciliation with America, or Washington's Farewell Address and Webster's Bunker Hill Oration; Macaulay's Life of Johnson, or Carlyle's Essay on Burns.

MATHEMATICS. Three units or 15 counts, viz: Elementary Algebra including fundamental operations, factoring, fractions, ratio, proportion, radicals, quadratics. Plane Geometry, including the straight line, angle, circle, proportion, similarity, and areas. Solid Geometry and Plane Trigonometry.

FOREIGN LANGUAGE. Two units or 10 counts. Any one language may be offered.

The candidate will be expected to have a practical knowledge of pronunciation, as well as a thorough mastery of grammatical forms and syntax, and to possess a familiarity with the literature in proportion to the amount of work offered.

DRAWING. One unit or 5 counts. A year's course in Drawing.

SCIENCE. Three units or 15 counts.

ELECTIVE. Three units or 15 counts.

#### SUMMARY

English .....	3	units or	15	counts
Mathematics .....	3	"	15	"
Foreign Language .....	2	"	10	"
Drawing .....	1	"	5	"
Science .....	3	"	15	"
Elective .....	3	"	15	"
Total .....	15	"	75	"

#### [b] To the Course in Applied Arts

ENGLISH. Three units or 15 counts, the same as to the course in Ceramic Engineering.

MATHEMATICS. Two units or 10 counts.

FOREIGN LANGUAGE. Two units or 10 counts. Any one language may be offered.

SCIENCE. Two units or 10 counts.

HISTORY. Two units or 10 counts.

ELECTIVE. Four units or 20 counts.

## SUMMARY

English .....	3	units	or	15	counts	.
Mathematics .....	2	"	"	10	"	
Foreign Language .....	2	"	"	10	"	
Science .....	2	"	"	10	"	
History .....	2	"	"	10	"	
Elective .....	4	"	"	20	"	
Total .....	15	"	"	75	"	

Admission is gained either on certificates or on examination, as follows:

### Admission on Certificate

REGENTS' CREDENTIALS. The credentials of the University of the State of New York are accepted instead of an examination in the subjects required for admission, so far as they cover these requirements. (For description of subjects, see *Entrance Requirements*.)

PRINCIPAL'S CERTIFICATE. Certificates are also received from principals of preparatory or high schools outside of New York State, provided such schools are known to the faculty for thoroughness of instruction. Such certificate must specify, in connection with each subject, the extent to which it has been pursued, by giving the text-book used, the method of instruction, the amount of time given to it, the date of the final examination, the degree of the applicant's proficiency, and must clearly show that the student has met the requirements in every detail. The school furnishes blank forms for such certificates upon application of principals of approved schools.

Principals of preparatory schools who desire to have their students admitted on certificate are invited to correspond with the director.

### Admission on Examination

Candidates who fail to present satisfactory certificates must pass a written examination in the required subjects. Examinations in all subjects required for admission are held at Alfred at the beginning of the year. Candidates must report

at the director's office and obtain permits for examination. The result of the examination may be obtained from the director.

## **Conditioned Students**

No student can enter the freshman class conditioned in more than two academic subjects. These conditions must be removed within one year.

## **Admission to Advanced Standing**

Students from other schools, having a course equivalent to that of the New York State School, may enter at the point from which they take dismissal, upon presentation of satisfactory certificates of standing and character, including an honorable dismissal.

## **Senior Thesis**

There is required of each candidate for a degree a thesis, for which a credit of two hours in each semester of the Senior year is given. The title of the thesis must be chosen in the field of Ceramics not later than November 1, and must be approved by the director. The thesis shall embody the results of actual independent research, and must be submitted for approval not later than May 1. A typewritten copy must be deposited with the director.

## **Graduation**

While no student will be permitted to graduate with a smaller credit than one hundred and forty semester hours, four full years of resident work will be required in either course. Upon students who satisfactorily complete the course in Ceramic Engineering, Alfred University will confer the degree of Bachelor of Science in Ceramic Engineering, and upon students who satisfactorily complete the course in Applied Arts the degree of Bachelor of Applied Arts.

# Courses of Study

All the studies in the courses leading to a degree are required for all the four years. Credit is given of one hour for each hour spent in lectures or recitations and of one hour for each laboratory period of two or three hours as required.

## Course in Ceramic Engineering

	<i>First Year</i>	Semester Hours
Mathematics 4, Algebra.....		3
Chemistry 1, General Chemistry, Lecture and Laboratory.....		3
German .....		3
English 1, English Comp. and Rhetoric.....		3
Ceramics 1, Lecture and Laboratory.....		2
Industrial Mechanics 1, Elementary Drafting.....		1½
Industrial Mechanics 5, Wood Working.....		1
Physical Training 1.....		1
Ethics 1 .....		½
		18
	<i>Second Year</i>	
Mathematics 5, Analytical Geometry.....		3
Physics 1, General Physics.....		5
Chemistry 2, Qualitative Analysis.....		3
German .....		3
Ceramics 2, Lecture and Laboratory.....		4
		18
	<i>Third Year</i>	
Mathematics 6, Calculus.....		3
Chemistry 3, Quantitative Analysis.....		3
Chemistry 6, Physical Chemistry.....		2
Ceramics 3, Lecture and Laboratory.....		4
Ceramics 4, Ceramic and Industrial Calculations.....		2
Geology 1 and 3, General and Economic Geology.....		2
Industrial Mechanics 2, Drafting, Advanced.....		1
		17
	<i>Fourth Year</i>	
Mathematics 7, Surveying.....		2
Chemistry 4 and 5, Tech. Cer. Chem.; Gas and Fuel Analysis.....		3
Ceramics 5, Lecture, Glass.....		2
Ceramics 6, Physical-Chemical Measurements.....		2
Ceramics 7, Lecture and Laboratory, Limes, Plasters and Cements		3
Ceramics 10, Thesis.....		2
Industrial Mechanics 4, Machine and Kiln Design.....		1½
Industrial Mechanics 8, Machine Shop Practice.....		1½
		17

# Course in Applied Arts

## First Year

	Semester Hours
Drawing 1, Studio Practice.....	2
Modeling 1, Studio Practice.....	2
Design 1, Lecture and Studio.....	2
Ceramics 1, Lecture.....	1
English 1, English Composition and Rhetoric.....	3
Modern Language .....	3
Chemistry 1, General Chemistry, Lecture and Laboratory.....	3
Physical Training 1.....	1
Ethics 1 .....	$\frac{1}{2}$
	<hr/> $17\frac{1}{2}$ <hr/>

## Second Year

Drawing 2, Studio Practice.....	3
Modeling 2, Studio Practice.....	$2\frac{1}{2}$
Design 2, Lecture and Studio.....	3
Ceramics 2, Lecture and Laboratory.....	4
English 8.....	2
Modern Language .....	3
Physical Training .....	$\frac{1}{2}$
	<hr/> $18$ <hr/>

## Third Year

Drawing 3, Studio Practice.....	3
Modeling 3, Studio Practice.....	3
Design 3, Lecture and Studio.....	3
Ceramic Craft 2, Lecture and Studio.....	2
Artistic Anatomy, Lecture and Studio.....	2
History of Art, Lecture.....	2
Industrial Mechanics 1, Elementary Drafting.....	$1\frac{1}{2}$
Ceramics 8, Laboratory.....	2
	<hr/> $18\frac{1}{2}$ <hr/>

## Fourth Year

Drawing 4, Studio Practice.....	2
Modeling 4, Studio Practice.....	3
Design 4, Lecture and Studio.....	3
Composition, Lecture and Studio.....	2
Chromatics, Studio Practice.....	2
Ceramics 9, Laboratory.....	2
Thesis .....	$\frac{1}{2}$
	<hr/> $16$ <hr/>

# Short Courses

Short courses of two years each are offered and are intended to meet the needs of persons who are unable to qualify for a course leading to a degree. Applicants must be at least 18 years of age and must give evidence of ability to receive instruction.

While these courses are carefully planned so as to make the best possible use of the time available, it is hoped that no student will rest content with a short course if the requirements for entrance to a four years' course can possibly be met. No subject for which credit is given in a short course can be applied to remove entrance conditions to a full course.

## Short Course in Clay-Working

	<i>First Year</i>	<i>Semester Hours</i>
Mathematics .....		3
Chemistry 1, General Chemistry, Lecture and Laboratory.....		3
English 1 .....		3
Ceramics 1 .....		2
Ceramics 2 .....		4
Industrial Mechanics 1.....		1½
Industrial Mechanics 5.....		1
Physical Training 1 .....		1
Ethics 1 .....		½
		<hr/>
		18

## *Second Year*

Chemistry 2, Qualitative and Quantitative Analysis.....	3
Physics .....	5
Ceramics 3 .....	4
Ceramics 4 .....	2
Industrial Mechanics 2.....	1½
Industrial Mechanics 4.....	1½
Industrial Mechanics 8.....	1½
	<hr/>
	18½

For particulars of the courses see the description of the courses in Ceramic Engineering.

## Short Course in Normal Art

<i>First Year</i>	<i>Studio Hours</i>
Drawing 1, Studio Practice (same as in Applied Arts).....	6
Design 1, Lecture and Studio (same as in Applied Arts).....	6
Modeling 1, Studio Practice.....	6
Public School Drawing 1, Studio Practice.....	6
Mechanical Drawing, Studio Practice.....	6
	<hr/>
	30
	<hr/>
<i>Second Year</i>	
Drawing 2, Studio Practice (same as in Applied Arts).....	9
Public School Drawing 2, Studio Practice.....	6
Normal Training, Lecture and Studio.....	9
History of Art, Lecture and Recitations.....	6
	<hr/>
	30
	<hr/>

For detailed information as to the courses in Mathematics, Modern Languages and English see the College Catalogue of Alfred University.

# Departments of Instruction

## DESCRIPTION OF COURSES

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### Ceramics

**Professor Binns**

**Professor Montgomery**

1. Lectures on the origin, properties and uses of clays and other ceramic materials. Types of ware and methods of manufacture. Elementary glaze composition.

Laboratory practice in the operations involved in manufacture. The preparation and use of forms, molds and dies. Making saggers, jiggering, pressing and casting pottery. Making brick and tile. The general use of the machine equipment.

First year. One hour lecture and three hours laboratory.  
*Two hours.*

**Professor Binns, Professor Montgomery.**

2. Lectures on the occurrence, classification and identification of clays. The manufacture of all classes of ceramic products. The theory and practice of drying and burning. The compounding of clay mixtures, and the production and use of glazes and colors. The glaze formula.

Laboratory practice in clay testing. The measurement of the physical properties of clays and the compounding of bodies and glazes. Kiln firing.

Second year. Two hours lecture and six hours laboratory.  
*Four hours.*

**Professor Binns.**

3. Lectures on the winning and preparation of clays. The technology of the ceramic industries. The mineralogical, chemical and physical changes which take place in clays, bodies and glazes during their preparation, drying and burning. The theory and practice of pyrometry.

Laboratory practice in the production and application of slips, engobes, enamels, glazes and colors. The production, decoration and firing of finished wares.

Third year. Two hours lecture and six hours laboratory.  
*Four hours.*

Professor Binns, Professor Montgomery.

4. Lectures with recitations on the calculations involved in the mixing and blending of ceramic materials in bodies, glazes and colors. The use of analyses. The designing of series for glaze study. Chemical and physical problems in gas volume relations, heat, combustion and the calorific value of fuels.

Third year. Two hours recitations. *Two hours.*

Professor Montgomery.

5. Lectures on the raw materials, preparation, compounding and manufacture of the various types of glass. The history of glass, its uses, and the methods employed in its decoration.

Fourth year. Two hours lectures. *Two hours.*

Professor Binns.

6. Laboratory practice with occasional lectures in the application of physical chemistry to ceramic problems. Viscosity of slips, deflocculation, colloids and the fineness of grain. Specific gravity and porosity. The use of the electric furnace in the study of dehydration, lag curves, melting points, deformation points, eutectics, and the viscosity of fused minerals and mineral mixtures.

Fourth year. Six hours laboratory. *Two hours.*

Professor Montgomery.

7. Lectures on the raw materials, preparation, compounding and manufacture of limes, plasters, natural and Portland cements. The theory of hydraulicity and the reactions involved in manufacture. Methods of testing.

Laboratory practice in the production of lime, plaster and cement and the study of their physical properties.

Fourth year. Two hours lecture and three hours laboratory. *Three hours.*

Professor Montgomery.

8. Laboratory practice for art students. The production of form by molding. The preparation of glazes for decorative pottery.

Second year. Six hours laboratory. *Two hours.*

Professor Binns, Miss Binns.

9. Laboratory practice in continuation of course 8. The preparation and use of underglaze colors. Glazes for colors. Colored glazes. The use of the potter's wheel.

Third year. Six hours laboratory. *Two hours.*

Professor Binns, Miss Binns.

10. Thesis.

Fourth year. Six hours laboratory. *Two hours.*

Professor Binns, Professor Montgomery.

## Chemistry

Professor Bole

Professor W. A. Titsworth

CHEMISTRY I. A thorough course in the theory and principles of the science of chemistry, covering Alexander Smith's College Chemistry. It is supposed that students entering this course shall have had high school physics, and preferably high school chemistry. Lecture and recitations *two hours*, laboratory *one hour*.

2. **QUALITATIVE ANALYSIS.** The detailed separation of the metals, non-metals and acid radicals. The student is required to apply the theory learned in course 1 and to explain the reason for each reaction. The ionic theory, solubility product, law of concentration, hydrolysis, amphoteric hydroxides, etc., are studied and application made in the separations. A laboratory course consisting of four hours of laboratory work a week throughout the year, with one hour lecture. Text-book, Stieglitz. Prerequisite, course 1 or its equivalent. *Three hours.*

3. **QUANTITATIVE ANALYSIS.** A laboratory course of four hours with a weekly lecture throughout the year. The work embraces the principal methods of gravimetric, volumetric and electro-chemical analysis, and the use of the reference works and the chemical journals. This course gives quantitative application of the laws which are studied qualitatively in course 2. Prerequisites, courses 1 and 2. *Three hours.*

4. **TECHNICAL ANALYSIS.** Lectures and laboratory work. The analysis of silicate and carbonate rocks is carried out in detail. The student is given the opportunity to compare different methods of analysis rather than to follow any specified method. Prerequisites, courses 1, 2 and 3. *Three hours. I.*

5. **GAS AND FUEL ANALYSIS.** One hour lecture and four hours laboratory. The complete analysis of flue, illuminating and natural gases is carried out in the laboratory. The study of the various fuels is taken up and different samples are analyzed by the student. The student is taught to use the Orsat & Hemphill apparatus and the Parr Calorimeter. Prerequisites, courses 1, 2, 3, 4. *Three hours. II.*

6. **PHYSICAL CHEMISTRY.** Introduction to the concepts of modern physical chemistry. The first semester is taken up with a detailed study of the quantitative laws governing gases, liquids, solids, and substances in solution.

During the second term a study of the phase rules and electro-chemistry is taken up and a detailed study of the laws of chemical equilibrium and applications of the same is carried out. Prerequisites, courses 1 and 2. *Two hours.*

## Physics

Professor W. A. Titsworth

1. GENERAL PHYSICS. A course in general physics for those who have had high school physics. The student should have studied algebra, plane geometry, and plane trigonometry. Three hours a week, lectures and recitations, and one two-hour period of laboratory work. In the laboratory typical experiments are performed by the student. The lectures are illustrated by experiments as far as possible. First semester, mechanics, sound and heat. Second semester, electricity and light. Text-book, Kimball's College Physics. *Five hours.*

2. PRACTICAL PHYSICS. This is a laboratory course intended for those who have had a course in College Physics without the corresponding laboratory work. It will consist of two double laboratory hours a week and will cover the same experiments as pursued by course 1. Occasionally a lecture, or a recitation to work problems and discuss the principles, will be substituted for the laboratory. During the second semester some advanced experiments will be given. *Two hours.*

3a. LIGHT AND HEAT. An advanced course in these subjects following some standard texts such as Edser's. Open to those who have had course 1. *Three hours. I.*

3b. MAGNETISM AND ELECTRICITY. An advanced course in these subjects open to students who have had course 1. The work will be somewhat technical before the close of the semester. *Three hours. II.*

4. ELECTRICAL MEASUREMENTS. Laboratory course accompanying physics 3b. *Two hours.*

# Industrial Mechanics

Professor Crandall

1. ELEMENTARY DRAFTING. Open to all regular and special students of the college. Elementary principles, geometric problems, projections, etc. *Two hours, counting one and one-half hours.*

2. ADVANCED DRAFTING. Open to those who have completed the first year's work and solid geometry. Descriptive geometry, shades, shadows, and perspective, with their applicants. *Two hours, counting one and one-half hours.*

3. DESCRIPTIVE GEOMETRY. Taught both by class exercises, in which the student demonstrates the various problems, and by instrumental solution in the drafting room, in which he makes accurate drawings illustrating these problems. This course includes the principles of shades, shadows, and perspective, all developed according to mathematical principles. *Two hours.*

4. MACHINE OR ARCHITECTURAL DRAFTING. Prerequisites, courses 1, 2, and 3. This course develops complete sets of working drawings, including bills of materials and estimates of either machine, architectural, or manual training subjects as the student may elect. *Two hours, counting one and one-half hours.*

5. WOOD-WORKING. An elementary course the purpose of which is to teach the students the intelligent use of the more common hand tools used in the shop, the care and the proper methods of sharpening them, and the correct method of making the principal joints used in carpentry and cabinet-making. As soon as each kind of joint is thoroughly understood, the student is taught its practical use in making a piece of furniture or apparatus. Special stress is placed on accuracy and neatness of workmanship, so that the student may early learn the necessity of careful, painstaking efforts in order to accomplish good results. *Two hours, counting one hour.*

6. PATTERN-MAKING. Prerequisite, course 5 or its equivalent. This course aims to give the student the elements of practical wood pattern-making. Each article made is to be a practical pattern which may be successfully cast in any foundry. The work is made very technical so that the student may become acquainted with actual shop methods so far as it is possible in a school shop. Accuracy and first-class workmanship are essential for success in this course. *Two hours, counting one and one-half hours.*

7. FORGING. Prerequisites, courses 5 and 6, or their equivalent. A practical course in the drawing, welding, and bending of iron for any purpose. The management of the fire and the forge is considered of first importance in this course. A large variety of articles in both iron and steel is made during the year, the work in steel coming the latter part of the year. Such tools are made from steel as cold chisels, lathe and planer tools, and special tools for special purposes. At frequent intervals during the year lectures and demonstrations are given on such subjects as the structure and manufacture of steel and iron, welding compounds, commercial shop methods, tempering, annealing, etc. *Two hours, counting one hour.*

8. MACHINE SHOP PRACTICE. Prerequisites, courses 5 and 6, or their equivalent. This course consists of exercises in chipping, filing, and fitting, lathe and planer works, and operations on the drill press. Skill in manipulation is not sought so much as a working knowledge of methods, a familiarity with the limitations and possibilities of the tools, and a greater insight into the practical, productive, and commercial side of shop methods and management. To this end, occasional lectures are given throughout the year on such subjects as commercial machine shop methods, time keeping systems, piece-work and premium plans, cost keeping, and stock room management. *Two hours, counting one and one-half hours.*

## Applied Arts

Miss Binns

Miss Greenwood

### Drawing

1. Freehand drawing; perspective. Charcoal drawing from the antique. Detail of figure and full figure from cast.

First year. Six hours studio. *Two hours.*

Miss Greenwood.

2. Drawing from the antique continued. Drawing from life. Painting from still-life and flowers.

Second year. Six hours studio. *Three hours.*

Miss Greenwood.

3. Water color painting from still life. Drawing and painting from life. Pastel, pen and ink, and pencil rendering.

Third year. Nine hours studio. *Three hours.*

Miss Greenwood.

4. Drawing and painting from life.

Fourth year. Six hours studio. *Two hours.*

Miss Greenwood.

### Modeling

1. Elementary modeling from the cast. Time sketches of ornament. Simple ornament from original designs. Principles and practice of plaster-casting in relief. Modeling for terra cotta.

Pottery building. Decoration of pottery by incising, inlaying and slip painting.

First year. Six hours studio. *Two hours.*

Miss Binns.

2. Modeling from the antique. Time sketches of ornament. Plaster casting in the round. Modeling for terra cotta from original designs. Decorative panels.

Pottery building. Decoration of pottery by incising, inlaying, and modeling.

Second year. Six hours studio. *Two and one-half hours.*

Miss Binns.

3. Modeling in relief from the antique and life. Time sketches in clay. Modeling for terra cotta from original designs. Decoration of wheel-made pottery by modeling, by underglaze, inlaid glazes.

Third year. Six hours studio. *Three hours.*

Miss Binns.

4. Modeling from life. Application of the figure to modeled decoration. Working out of such problems as sundials, fountains. Decorative panels for terra cotta. Advanced work in pottery decoration.

Fourth year. Six hours studio. *Three hours.*

Miss Binns.

## Design

1. Designing of geometric ornament. The study of historic ornament. The designing of simple ornament in historic styles. Application of ornament to surface patterns, tiles, pottery, mosaics, etc.

First year. One hour lecture, four hours studio. *Two hours.*

Miss Greenwood.

2. Application of ornament continued. Illuminating, book decoration, lettering, textiles, etc. Development of color.

Second year. One hour lecture, eight hours studio. *Three hours.*

Miss Greenwood.

3. Design as applied to Ceramics. Modeled designs. Wall-paper. Illuminating, "stained" glass, etc.

Third year. Nine hours studio. *Three hours.*

Miss Greenwood.

4. Architectural design. Application of ornament continued. Professional rendering.

Fourth year. Nine hours studio. *Three hours.*

Miss Greenwood.

### **Ceramic Craft**

Study and production of ceramic wares. Relation of use and beauty. Hand and machine work. Professional rendering.

Third year. One hour lecture and five hours studio. *Two hours.*

Miss Binns, Miss Greenwood.

### **Artistic Anatomy**

Lectures dealing with the bones and muscles of the body, illustrated with analytical drawings. Construction of anatomical figure from memory.

Third year. One hour lecture, three hours studio. *Two hours.*

Miss Greenwood.

### **Chromatics**

Study of color. Oil painting. Still-life. Landscape.

Fourth year. Six hours studio. *Two hours.*

Miss Greenwood.

### **Composition**

Study of the laws of composition. The use of the figure in decoration. Application to book illustration, terra cotta, etc.

Four year. One hour lecture, five hours studio. *Two hours.*

Miss Greenwood, Miss Binns.

### **History of Art**

Lectures and recitations illustrated with photographs and slides, on the history of art and the appreciation of beauty. The beginnings of art. Egyptian, Greek and Roman art. The arts and crafts of the Middle Ages. The painting and sculpt-

ure of the Renaissance. Modern art. Reinach's "History of Art Throughout the Ages," is used as a text-book with supplementary reading and keeping of note-books.

Third year. Two hours recitations. *Two hours.*

Miss Binns.

### **Normal Art**

Miss Binns

Miss Greenwood

### **Drawing**

1. Same as Drawing 1 in Applied Arts Course.

First year. Six hours studio.

Miss Greenwood.

2. Same as Drawing 2 in Applied Arts Course.

Second year. Nine hours studio.

Miss Greenwood.

### **Design**

Same as Design 1 in Applied Arts Course.

First year. One hour lecture, four hours studio.

Miss Greenwood.

### **Modeling**

Elementary modeling from the cast. Modeling from memory of animals, etc. Story illustration. Sand table work. Simple decorated tiles, pottery, etc.

First year. Six hours studio.

Miss Binns.

### **Public School Drawing**

1. Exercises in blackboard drawing. Pencil drawing from nature. Time sketches. Pose drawing. Exercises in teaching.

First year. Six hours studio.

Miss Binns.

2. Exercises in blackboard drawing. Pencil drawing of animals, plants, etc. Illustrative drawing. Memory sketching.

Second year. Six hours studio.

Miss Binns.

## **Mechanical Drawing**

Geometric problems. Use of instruments. Reading of working drawings. Working drawings from freehand sketches. Perspective sketching from plan. Drawing to scale.

First year. Six hours studio.

Miss Greenwood, Miss Binns.

## **Normal Training**

Lectures on the theory of teaching, methods of criticism, methods of supervision. Observation of work in local schools. Working out of art problems for the grades and High School. Keeping of note-books and portfolios of work. Exercises in teaching.

Second year. One hour lecture, six hours studio.

Miss Binns.

## **History of Art**

Same as in Applied Arts course.

Second year. Two hours lecture and recitations.

Miss Binns.

# Department of Investigation and Research

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## Clay Testing

Professor Binns

The State School of Ceramics is fitted and the experts in charge are qualified, for the professional examination and testing of clays for economic purposes. Such clays may be classified under the following heads:

- (a) Kaolin, white burning residual clay.
- (b) Kaolin, white burning, washed for market, used in the manufacture of pottery, porcelain and paper.
- (c) Ball clay, white or cream burning, sedimentary clay of high plasticity, used in pottery manufacture.
- (d) Stone ware clay, gray or cream burning, more or less sandy in character, used in stone ware manufacture.
- (e) Fire clay, buff or white burning, refractory, used for manufacture of fire brick.
- (f) Brick clay including colored clays and shales, used for the manufacture of brick and tile of various qualities and descriptions.

For each of the above classes special tests are necessary, and the charges made are proportionate to the work required.

A report upon each sample will be furnished and must be understood to refer only to the samples submitted unless the experts are instructed to examine the deposit and prepare their own samples, in which case special charges will be made. The report includes physical tests, and chemical analysis where necessary.

Advice as to washing or other preparation of the clay is also given, together with an opinion as to the industry to which the material may be applied.

## **Industrial Problems**

**Professor Binns**

**Professor Montgomery**

The problems incidental to the manufacture of clay wares are regularly investigated at the school. Manufacturers are invited to present questions for study. Persons resident within the state are entitled to reasonable services without charge.







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1915/16

UNIVERSITY PUBLICATIONS

EIGHTIETH YEAR—NO. 4

# The New York State School of Clay-Working and Ceramics



ALFRED, NEW YORK

1915--1916

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# CALENDAR

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## First Semester 1915--1916

		1915
Registration, Entrance Examinations	Wednesday	Sept. 15
Instruction begins	Thursday	Sept. 16
<b>Election Day</b>	<b>Tuesday</b>	<b>Nov. 2</b>
<b>Thanksgiving Day</b>	<b>Thursday</b>	<b>Nov. 25</b>
RECESS	Friday	Nov. 26
Holiday Recess begins	Wednesday evening	Dec. 22
<b>HOLIDAY RECESS</b>		
		1916
Instruction resumed	Wednesday morning	Jan. 5
Mid-year Examinations begin	Wednesday	Jan. 19
Examinations end, Semester ends	Tuesday	Jan. 25

## Second Semester 1915--1916

Semester begins	Wednesday	Jan. 26
Spring Recess begins	Tuesday evening	April 11
<b>SPRING RECESS</b>		
Instruction resumed	Wednesday morning	April 26
<b>Memorial Day</b>	<b>Sunday</b>	<b>May 30</b>
Final Examinations begin	Friday	May 26
Examinations end	Friday	June 2
Degrees conferred at University Commencement	Thursday	June 8

## First Semester 1916--1917

		1916
Registration, Entrance Examinations	Wednesday	Sept. 20
Instruction begins	Thursday	Sept. 21
<b>Election Day</b>	<b>Tuesday</b>	<b>Nov. 7</b>
<b>Thanksgiving Day</b>	<b>Thursday</b>	<b>Nov. 30</b>
RECESS	Friday	Dec. 1
Holiday Recess begins	Wednesday evening	Dec. 20
<b>HOLIDAY RECESS</b>		
		1917
Instruction resumed	Wednesday morning	Jan. 3
Midyear Examinations begin	Monday	Jan. 22
Examinations end, Semester ends	Friday	Jan. 26

## Second Semester 1916--1917

Semester begins	Monday morning	Jan. 29
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## FACULTY

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BOOTHE COLWELL DAVIS, Ph. D., D. D., LL. D., President  
Professor of Ethics.

CHARLES F. BINNS, Sc. M., Director,  
Professor of Ceramic Technology

EARLE T. MONTGOMERY, E. M. in Cer., Assistant Director,  
Professor of Ceramic Engineering.

ALPHEUS B. KENYON, Sc. D.,  
Professor of Mathematics.

PAUL E. TITSWORTH, Ph. D.,  
Professor of Modern Languages.

JAMES D. BENNEHOFF, Sc. M.,  
Professor of Natural Science.

LINTON B. CRANDALL, Sc. B.,  
Professor of Industrial Mechanics.

WALDO A. TITSWORTH, Sc. M., Registrar,  
Professor of Physics.

\*GEORGE A. BOLE, A. M.,  
Professor of Chemistry.

CHARLES H. MILLIGAN, A. B., S. B.,  
Instructor in Chemistry.

KATHERINE H. PORTER, A. M.,  
Associate Professor of English.

\*M. ELSIE BINNS,

Associate Professor of Modeling and Pottery.

\*CLARA C. GREENWOOD,

Associate Professor of Drawing and Design.

MARION L. FOSDICK,

Instructor in Drawing and Design.

MYRTLE MERITT,

Instructor in Modeling and Pottery.

JOSEPH JOHNSON,

Foreman of Workshop.

A. L. WHITFORD.

Janitor and Machinist.

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\*Absent on leave.

# NEW YORK STATE SCHOOL OF CLAY-WORKING AND CERAMICS

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In the field of applied science and commercial engineering the subject of clay-working is becoming daily more important. To the architect and builder clay offers the most satisfactory fireproof material, to the housewife pottery is indispensable and to the artist clay and clay-wares afford at once a facile means of expression and a prominent feature of home decoration.

The problems which confront the clay-worker are unique. He must learn to win his material economically from the earth, to shape his wares with due regard to both utility and art, to glaze or otherwise finish them in a satisfactory manner and to burn the whole successfully upon a large scale. His education must therefore be comprehensive and complete. He must, in a word, be a specialist, and to this end the New York State School was established.

Chapter 383, Laws of New York State, 1900, provided for the construction and maintenance of the school, and in order to secure the necessary facilities for collateral branches of study Alfred University was chosen as the location.

For this work the University offers great advantages. Laboratories of chemistry and physics, libraries, museums of geology and natural history, workshops for manual training, and all the departments of general culture are available, so that the many and varied requirements of a liberal education are fully met.

The State of New York contains vast deposits of clays and shales at present lying dormant. It also contains large numbers of young men and women who are seeking profitable employment. The work of the school is to bring these together. Neither the science nor the art is neglected. Attention is given to the improvement of methods of manufacture and the reduction of cost so that the resources of the State may be fully developed and that within its borders may be manufactured the clay-wares, both coarse and fine, necessary for its own consumption.

### Building and Equipment

The building of the New York State School of Clay-Working and Ceramics has been especially designed for the purposes of the school, and is located on land which was deeded by Alfred University to the people of the state of New York. It is built of red brick and terra cotta with gray trimmings and roofed with brown tile. The main building has a floor space of about thirteen thousand square feet, and a frontage of seventy-five feet.

To this has been added a fireproof wing measuring about 36 by 57 feet and three stories in height.

In the main basement are located a full battery of kilns, the heavy machinery for the manufacture of brick, tile, hollow blocks and roofing tile, the slip-making plant, cylinders for glaze preparation, and a workshop fitted with modern appliances for pottery and porcelain manufacture. There are also rooms for mold making and drying.

In the sub-basement are located the heating plant and fuel storage and a damp cellar.

On the principal floor are the executive offices, the technical laboratory, a lecture room, a room for furnaces, the chemical laboratory and balance room and a special kiln room for the Art department. On the second floor is the

department of Design and Applied Art and on the third floor a lecture room and a studio for advanced work.

The motive power is supplied by two Otto gas engines of 36 and 8 horse power, respectively.

The school maintains a complete technical library for reference and for the encouragement of independent reading and research. It also encourages membership and activity in the New York State Students' Branch of the American Ceramic Society, which was chartered at Alfred in 1915, replacing the former local ceramic society which had been active for a number of years.

### **Courses Offered**

The courses of study which lead to a degree extend over a period of four years and embrace the science, technology and art special to clay-working. The ceramic work is elective as to the particular branch of clay-working to be followed.

The course in Ceramic Engineering is designed to qualify men to occupy positions as superintendents, scientific experts and ceramic chemists.

The course in Applied Arts is intended to fit the student for the designing and producing of artistic pottery.

### **Benefits of the School**

The demand for trained clay-workers has grown to considerable proportions during the last few years. Capital is becoming more and more interested in the development of clay lands and shale banks; nor is there any likelihood that this interest will decrease.

On the other hand the number of men who have studied in schools is very small compared with the openings to be filled. Hitherto, no student who has passed through the

school successfully has remained unemployed, and the director is continually in receipt of applications for persons qualified to fill responsible positions. Every effort is made by the faculty to place the students in communication with manufacturers desiring to offer them employment.

The student successfully pursuing the technical course will be able, presuming that his personal capacity is good, to take up the practical work of manufacturing clay wares. He will have had experience with every description of clay, and with the minerals and oxides used in preparing bodies and glazes. He will have acquired a knowledge of machinery and kilns which he will find of the greatest value; in short, he will be a trained man as regards the problems of clay-working.

Students who conscientiously pursue the course in applied art will be able to design and make artistic pottery, preparing their own clays and compounding their own glazes, if necessary.

### **Physical Training**

The aim of the work in physical training is to bring the whole body to its normal condition, to acquire ease and precision in movement, and to develop the health and strength of the student.

**GYMNASIUM.** The gymnasium is on the lower floor of Babcock Hall. It is equipped with chest weights, dumb bells, wands, Indian clubs, horizontal and parallel bars, rings, poles and floor mats. A dressing-room with individual lockers, a well equipped bathroom with shower baths, and two handball courts are provided. The gymnasium is in charge of the physical director. All students, unless excused by the director on the advice of a physician, are required to do two semester hours of work during the freshman year.

and one during the sophomore year, under the direction of the instructor in physical training.

**ATHLETIC FIELD.** The athletic field embraces over three acres of level land. All intercollegiate contests in football, baseball, and track athletics are held on this field. The field affords a running track (one-sixth of a mile). Appropriate apparatus for field sports is provided.

**OUTDOOR SPORTS**, including tennis, are in the immediate charge of the athletic association, which has a football team playing under intercollegiate rules, a baseball nine, and a basketball team. For tennis there are excellent courts and an annual tournament is maintained. Athletics, however, are not carried to extremes. The committee on athletics from the faculty, and the graduate manager exercise general supervision, for it is the purpose of the university to give due attention to the physical welfare of its students, and at the same time keep the physical in proper relation to the intellectual and moral development.

#### Fees per Semester

Athletic Fee.....	\$2 00
Reading Room Fee.....	1 00
Extras, for use of instruments and laboratory materials:	
Gymnasium fee (all Freshmen).....	1 00
Surveying .....	4 00
Chemistry Breakage Deposit, per year, Chem. 1.....	2 00
Chemistry Breakage Deposit, per year, Chem. 2, 3, 4, 5..	5 00
Elementary Chemistry.....	4 00
Blowpipe Analysis and Mineralogy.....	4 00
Qualitative Analysis.....	5 00
Quantitative Analysis, Advanced Quantitative Analysis or Clay Analysis.....	5 00
Physics 1, Laboratory.....	1 50
Advanced Physics, Laboratory.....	2 50
Shop Fee.....	4 00
Graduation Fee.....	5 00

No tuition is charged to students who are prepared to enter the regular courses, but no student is entitled to free tuition in any college class not forming part of a course in the School of Ceramics nor are students registered in the college entitled to free tuition in the School of Ceramics in respect of any subject for which college credit is given.

Bills will be presented by the third Friday of the semester, and must be paid at the office of the treasurer by the fifth Friday of the semester.

### **Rooms and Board**

Rooms and board for women can be had at Ladies' Hall, and rooms for men at Burdick Hall, at the following rates:

Rooms, furnished, per semester.....	\$10 00 to \$24 00
Board, per week.....	4 00

All rooms are fitted with gas fixtures for heating and lighting. Gas is paid for according to amount used at 35 cents per thousand.

Board is furnished to men at Burdick Hall on the co-operative plan.

Rooms and board, including fuel, can be obtained in private families at from \$3 to \$5 per week. Board in clubs, organized and managed by the students themselves, varies from \$2.90 to \$3.50 per week, according to the means and inclinations of the members.

### **Estimated Annual Expenses**

Excluding cost of clothing and travel, one can go through a college year by close economy upon \$215 and by exercising care, upon \$240. An allowance of \$275 is comfortable, and \$350 is liberal.

Board, \$2.90 to \$4.00 per week.....	\$104 00 to \$144 00
Rooms, \$10.00 to \$24.00 per semester.....	20 00 to 48 00
Gas, \$4.00 to \$7.00 per year.....	4 00 to 7 00
Laundry, per year.....	12 00 to 20 00
Books .....	10 00 to 25 00
Lyceum dues, etc.....	2 00 to 10 00
Incidentals and extras.....	25 00 to 35 00
<hr/>	
Total for year.....	\$177 00 to \$289 00

### **Self-Support**

Many of the graduates have been persons of very limited means who worked their way through college. While the school cannot guarantee work to all applicants, enterprising students can usually find employment in the town with satisfactory compensation for all the time they can profitably spare from their studies. Some earn enough to meet the greater part of their expenses. Students should distinctly understand that when they attempt entire self-support they should lengthen their term of study.

### **Terms and Vacations**

The school year consists of two terms, or semesters, of about eighteen weeks each. There is a vacation at the holidays of about two weeks; a short recess at Easter time; and a summer vacation of about fifteen weeks.

### **Class Exercises**

The class exercise period is one hour in length; in laboratory work, however, the class exercise continues through two or more hours, as the case may be. There are no class exercises on Saturday or Sunday. The schedule of recitations is fixed by the faculty. Any student failing to receive credit for ten semester hours in any given semester will be subject to dismissal.

## **Unit or Measure of Credit**

One class exercise per week for one term or semester, is taken as the unit or measure of credit, and is termed a semester hour. In each course leading to a degree one hundred and forty semester hours are required.

The work of students in each subject is graded as A, excellent; B, good; C, fair; D, poor; E, conditioned failure; F, failure.

## **Absences and Excuses**

It is expected that no student will be absent from any class period except in case of necessity. Reasons for absence from classes are submitted to a committee of the faculty known as the Committee on Absences. All excuses are granted with the understanding that the work missed will be made up to the satisfaction of the instructor. Unexcused absences in excess of twice the number of recitations per week will lower the grade one letter. Each absence occurring within three days preceding or following a recess shall count two, and each unexcused absence in excess of the number of recitations per week shall count two. Two unexcused tardinesses count as one unexcused absence. Absences, excused or unexcused, in excess of three times the number of recitations per week will be considered sufficient reason for suspension from the course.

## **Examinations**

Final examinations are held at the close of each semester in addition to occasional written tests during the semester. Fees will be charged for all examinations taken by those not regular members of classes, or at other times than those appointed for the class examinations.

## ADMISSION

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Candidates for admission to the freshman class must be at least fifteen years of age and must present certificates of good moral character. The particular requirements for entrance are explained below. Preparatory work is estimated in "units." The "unit" represents a course of five recitations weekly throughout an academic year of the preparatory school. Fifteen "units" or an equivalent must be offered.

### Entrance Requirements

**ENGLISH.** Three units. The candidate must be familiar with elementary rhetoric, both as a science and an art, and must be proficient in spelling, punctuation, idiom and division into paragraphs. Preparation must include the work in English prescribed by the various college associations.

Each student must be able to pass an examination upon ten books selected from the list prescribed by the college entrance associations. The following ten are recommended: Shakespeare's Julius Cæsar, and The Merchant of Venice; The Sir Roger de Coverly Papers; Goldsmith's The Deserted Village; Scott's Ivanhoe; Hawthorne's The House of the Seven Gables; Irving's Sketch Book; Ruskin's Sesame and Lilies; Lowell's The Vision of Sir Launfal; Longfellow's Courtship of Miles Standish.

In addition to the above a thorough study of each of the works named below is required. The examination will be upon subject matter, form and structure.

Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso and Comus; or Tennyson's Idylls of the King; Burke's Speech on Conciliation with America, or Washington's Farewell Address and Webster's Bunker Hill Oration; Macaulay's Life of Johnson, or Carlyle's Essay on Burns.

FOREIGN LANGUAGES. 4 units. Latin grammar and composition; Cæsar, four books of the Gallic War; Cicero, six orations; Virgil, six books of the Aeneid, or equivalents; or four units from not more than three of the following: Latin, Greek, German, French, Spanish.

MATHEMATICS. 2 units. Elementary Algebra, including fundamental operations, factoring, fractions, ratio, proportion, radicals, quadratics; Plane Geometry, including the straight line, angle, circle, proportion, similarity, and areas.

SCIENCE. 1 unit. Biology, Botany, Physiology, Zoology, Physical Geography, Physics or Chemistry. Any one may be offered.

ELECTIVE. 5 units in addition to the above subjects. Candidates may substitute one unit of science and one unit of advanced mathematics for two units of foreign language.

### Summary

English .....	3 units
Mathematics .....	2 units
Foreign Languages .....	4 units
Science .....	1 unit
Elective .....	5 units

Admission is gained either on certificate or on examination, as follows:

### Admission on Certificate

REGENTS' CREDENTIALS. The credentials of the University of the State of New York are accepted instead of an examination in the subjects required for admission, so far as

they cover these requirements. (For description of subjects, see *Entrance Requirements*.)

**PRINCIPAL'S CERTIFICATE.** Certificates are also received from principals of preparatory or high schools outside of New York state, provided such schools are known to the faculty for thoroughness of instruction. Such certificate must specify, in connection with each subject, the extent to which it has been pursued, by giving the text-book used, the method of instruction, the amount of time given to it, the date of the final examination, the degree of the applicant's proficiency, and must clearly show that the student has met the requirements in every detail. The school furnishes blank forms for such certificates upon application of principals of approved schools.

Principals of preparatory schools who desire to have their students admitted on certificate are invited to correspond with the director.

### **Admission on Examination**

Candidates who fail to present satisfactory certificates must pass a written examination in the required subjects. Examinations in all subjects required for admission are held at Alfred at the beginning of the year. Candidates must report at the director's office and obtain permits for examination. The result of the examination may be obtained from the director.

### **Conditioned Students**

No student can enter the freshman class conditioned in more than two academic subjects. These conditions must be removed within one year.

## **Admission to Advanced Standing**

Students from other schools, having a course equivalent to that of the New York State School, may enter at the point from which they take dismissal, upon presentation of satisfactory certificates of standing and character, including an honorable dismissal.

## **Senior Thesis**

There is required of each candidate for a degree a thesis, for which a credit of two hours in each semester of the Senior year is given. The title of the thesis must be chosen in the field of Ceramics not later than November 1, and must be approved by the director. The thesis shall embody the results of actual independent research, and must be submitted for approval not later than May 1. A typewritten copy must be deposited with the director.

## **Graduation**

While no student will be permitted to graduate with a smaller credit than one hundred and forty semester hours, four full years of resident work will be required in either course. Upon students who satisfactorily complete the course in Ceramic Engineering, Alfred University will confer the degree of Bachelor of Science in Ceramic Engineering, and upon students who satisfactorily complete the course in Applied Arts the degree of Bachelor of Science in Applied Arts.

# COURSES OF STUDY

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All the studies in the courses leading to a degree are required for all the four years. Credit is given of one hour for each hour spent in lectures or recitations and of one hour for each laboratory period of two or three hours as required.

## Course in Ceramic Engineering

### First Year

	Semester Hours
Mathematics 4, Algebra.....	3
Chemistry 1, General Chemistry, Lecture and Laboratory.....	3
German .....	3
English 1, English Comp. and Rhetoric.....	3
Ceramics 1, Lecture and Laboratory.....	2
Industrial Mechanics 1, Elementary Drafting.....	1½
Industrial Mechanics 5, Wood Working.....	1
Physical Training 1.....	1
Ethics 1.....	½
	18

### Second Year

Mathematics 5, Analytical Geometry.....	3
Physics 1, General Physics.....	5
Chemistry 2, Qualitative Analysis.....	3
German .....	3
Ceramics 2, Lecture and Laboratory.....	4
	18

### Third Year

Mathematics 6, Calculus.....	3
Chemistry 3, Quantitative Analysis.....	3
Chemistry 6, Physical Chemistry.....	2
Ceramics 3, Lecture and Laboratory.....	4
Ceramics 4, Ceramic and Industrial Calculations.....	2
Geology 1 and 3, General and Economic Geology.....	2
Industrial Mechanics 2, Drafting, Advanced.....	1

#### Fourth Year

Mathematics 7, Surveying.....	2
Chemistry 4 and 5, Tech. Cer. Chem.; Gas and Fuel Analysis..	3
Ceramics 5, Lecture, Glass.....	2
Ceramics 6, Physical-Chemical Measurements.....	2
Ceramics 7, Lecture and Laboratory, Limes, Plasters and Cements .....	3
Ceramics 10, Thesis.....	2
Industrial Mechanics 4, Machine and Kiln Design.....	1½
Industrial Mechanics 8, Machine Shop Practice.....	1½
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	17

#### Course in Applied Arts

##### First Year

	Semester	Hours
Drawing 1, Studio Practice.....		2
Modeling 1, Studio Practice.....		2
Design 1, Lecture and Studio.....		2
Ceramics 1, Lecture.....		1
English 1, English Composition and Rhetoric.....		3
Modern Language.....		3
Chemistry 1, General Chemistry, Lecture and Laboratory....		3
Physical Training 1.....		1
Ethics 1.....		½
		—
		17½

##### Second Year

Drawing 2, Studio Practice.....	3
Modeling 2, Studio Practice.....	2½
Design 2, Lecture and Studio.....	3
Ceramics 2, Lecture and Laboratory.....	4
English 8.....	2
Modern Language.....	3
Physical Training.....	½
	—
	18

### Third Year

Drawing 3, Studio Practice.....	3
Modeling 3, Studio Practice.....	3
Design 3, Lecture and Studio.....	3
Ceramic Craft 2, Lecture and Studio.....	2
Artistic Anatomy, Lecture and Studio.....	2
History of Art, Lecture.....	2
Industrial Mechanics 1, Elementary Drafting.....	1½
Ceramics 8, Laboratory.....	2
	—
	18½

### Fourth Year

Drawing 4, Studio Practice.....	2
Modeling 4, Studio Practice.....	3
Design 4, Lecture and Studio.....	3
Composition, Lecture and Studio.....	2
Chromatics, Studio Practice.....	2
Ceramics 9, Laboratory.....	2
Ceramics 10, Thesis.....	2
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	16

## SHORT COURSES

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Short courses of two years each are offered and are intended to meet the needs of persons who are unable to qualify for a course leading to a degree. Applicants must be at least 18 years of age and must give evidence of ability to receive instruction.

While these courses are carefully planned so as to make the best possible use of the time available, it is hoped that no student will rest content with a short course if the requirements for entrance to a four years' course can possibly be met. No subject for which credit is given in a short course can be applied to remove entrance conditions to a full course.

### Short Course in Clay-Working

	First Year	Semester Hours
Mathematics .....		3
Chemistry 1, General Chemistry, Lecture and Laboratory.....		3
English 1.....		3
Ceramics 1.....		2
Ceramics 2.....		4
Industrial Mechanics 1.....		1½
Industrial Mechanics 5.....		1
Physical Training 1.....		1
Ethics 1.....		½

### Second Year

Chemistry 2, Qualitative and Quantitative Analysis.....	3
Physics .....	5
Ceramics 3.....	4
Ceramics 4.....	2
Industrial Mechanics 2.....	1½
Industrial Mechanics 4.....	1½
Industrial Mechanics 8.....	1½
	—
	18½

For particulars of the courses see the description of the courses in Ceramic Engineering.

### Short Course in Normal Art

#### First Year

	Studio Hours
Drawing 1, Studio Practice (same as in Applied Arts).....	6
Design 1, Lecture and Studio (same as in Applied Arts).....	6
Modeling 1, Studio Practice.....	6
Public School Drawing 1, Studio Practice.....	6
Mechanical Drawing, Studio Practice.....	6
	—
	30

#### Second Year

Drawing 2, Studio Practice (same as in Applied Arts).....	9
Public School Drawing 2, Studio Practice.....	6
Normal Training, Lecture and Studio.....	9
History of Art, Lecture and Recitations.....	6
	—
	30

For detailed information as to the courses in Mathematics, Modern Languages and English see the College Catalogue of Alfred University.

## DEPARTMENTS OF INSTRUCTION

### Description of Courses

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#### CERAMICS

Professor Binns

Professor Montgomery

1. Lectures on the origin, properties and uses of clays and other ceramic materials. Types of ware and methods of manufacture. Elementary glaze composition.

Laboratory practice in the operations involved in manufacture. The preparation and use of forms, molds and dies. Making saggers, jiggering, pressing and casting pottery. Making brick and tile. The general use of the machine equipment.

First year. One hour lecture and two hours laboratory. *Two hours.*

Professor Binns, Professor Montgomery.

2. Lectures on the occurrence, classification and identification of clays. The manufacture of all classes of ceramic products. The theory and practice of drying and burning. The compounding of clay mixtures, and the production and use of glazes and colors. The glaze formula.

Laboratory practice in clay testing. The measurement of the physical properties of clays and the compounding of bodies and glazes. Kiln firing.

Second year. Two hours lecture and six hours laboratory. *Four hours.*

Professor Binns.

3. Lectures on the winning and preparation of clays. The technology of the ceramic industries. The mineralogical, chemical and physical changes which take place in clays, bodies and glazes during their preparation, drying and burning. The theory and practice of pyrometry.

Laboratory practice in the production and application of slips, engobes, enamels, glazes and colors. The production, decoration and firing of finished wares.

Third year. Two hours lecture and six hours laboratory. *Four hours.*

Professor Binns, Professor Montgomery.

4. Recitations on the calculations involved in the mixing and blending of ceramic materials in bodies, glazes and colors. The use of analyses. The designing of series for glaze study. Chemical and physical problems in gas volume relations, heat, combustion and the calorific value of fuels.

Third year. Two hours recitations. *Two hours.*

Professor Montgomery.

5. Lectures on the raw materials, preparation, compounding and manufacture of the various types of glass. The history of glass, its uses, and the methods employed in its decoration.

Fourth year. Two hours lectures. *Two hours.*

Professor Binns.

6. Laboratory practice with occasional lectures in the application of physical chemistry to ceramic problems. Viscosity of slips, deflocculation, colloids and the fineness of grain. Specific gravity and porosity. The use of the electric furnace in the study of dehydration, lag curves, melting points, deformation points, eutectics, and the viscosity of fused minerals and mineral mixtures.

Fourth year. Six hours laboratory. *Two hours.*

Professor Montgomery.

7. Lectures on the raw materials, preparation, compounding and manufacture of limes, plasters, natural and Portland cements. The theory of hydraulicity and the reactions involved in manufacture. Methods of testing.

Laboratory practice in the production of lime, plaster and cement and the study of their physical properties.

Fourth year. Two hours lecture and three hours laboratory. *Three hours.*

Professor Montgomery.

8. Laboratory practice for art students. The production of form by molding. The preparation of glazes for decorative pottery.

Third year. Six hours laboratory. *Two hours.*

Professor Binns.

9. Laboratory practice in continuation of course 8. The preparation and use of underglaze colors. Glazes for colors. Colored glazes. The use of the potter's wheel.

Fourth year. Six hours laboratory. *Two hours.*

Professor Binns.

10. Thesis.

Fourth year. Six hours laboratory. *Two hours.*

Professor Binns, Professor Montgomery.

## **CHEMISTRY**

**Professor Bole**

**Professor W. A. Titsworth**

**Mr. Milligan**

CHEMISTRY 1. A thorough course in the theory and principles of the science of chemistry, covering Alexander Smith's College Chemistry. It is supposed that students entering this course shall have had high school physics, and

preferably high school chemistry. Lecture and recitations, *two hours*, laboratory *one hour*.

2. **QUALITATIVE ANALYSIS.** The detailed separation of the metals, non-metals and acid radicals. The student is required to apply the theory learned in course 1 and to explain the reason for each reaction. The ionic theory, solubility product, law of concentration, hydrolysis, amphoteric hydroxides, etc., are studied and application made in the separations. A laboratory course consisting of four hours of laboratory work a week throughout the year, with one hour lecture. Text-book, Stieglitz. Prerequisite, course 1 or its equivalent. *Three hours.*

3. **QUANTITATIVE ANALYSIS.** A laboratory course of four hours with a weekly lecture throughout the year. The work embraces the principal methods of gravimetric, volumetric and electro-chemical analysis, and the use of the reference works and the chemical journals. This course gives quantitative application of the laws which are studied qualitatively in course 2. Prerequisites, courses 1 and 2. *Three hours.*

4. **TECHNICAL ANALYSIS.** Lectures and laboratory work. The analysis of silicate and carbonate rocks is carried out in detail. The student is given the opportunity to compare different methods of analysis rather than to follow any specified method. Prerequisites, courses 1, 2 and 3. *Three hours. I.*

5. **GAS AND FUEL ANALYSIS.** One hour lecture and four hours laboratory. The complete analysis of flue, illuminating and natural gases is carried out in the laboratory. The study of the various fuels is taken up and different samples are analyzed by the student. The student is taught to use the Orsat & Hemphill apparatus and the Parr Calorimeter. Prerequisites, courses 1, 2, 3, 4. *Three hours. II.*

6. PHYSICAL CHEMISTRY. Introduction to the concepts of modern physical chemistry. The first semester is taken up with a detailed study of the quantitative laws governing gases, liquids, solids, and substances in solution.

During the second term a study of the phase rules and electro-chemistry is taken up and a detailed study of the laws of chemical equilibrium and applications of the same is carried out. Prerequisites, courses 1 and 2. *Two hours.*

## PHYSICS

Professor W. A. Titsworth

1a. GENERAL PHYSICS. A course in general physics for those who have had high school physics, although persons who have not had the high school preparation may be admitted to the class. The student should have studied algebra, plane geometry and plane trigonometry. Special emphasis is laid on the application of principles studied in this course to natural phenomena and the common occurrences of daily life. The lectures are illustrated by demonstrations as far as possible. It is expected that the laboratory course 1b will be taken in connection with this course. First semester, mechanics and heat; second semester, magnetism, electricity, light and sound. *Three hours.*

1b. GENERAL PHYSICS LABORATORY. This course is planned to accompany course 1a, but will be open to any who have had a lecture course in general college physics without the corresponding laboratory work. Typical experiments illustrating the principles of physics are performed by the student in a well equipped laboratory. Experiments will also be written up in the laboratory. Nearly thirty experiments will be performed during the year. Two double laboratory periods a week. *Two hours.*

## INDUSTRIAL MECHANICS

Professor Crandall

1. ELEMENTARY DRAFTING. Open to all regular and special students of the college. Elementary principles, geometric problems, projections, etc. *Two hours, counting one and one-half hours.*

2. ADVANCED DRAFTING. Open to those who have completed the first year's work and solid geometry. Descriptive geometry, shades, shadows, and perspective, with their applicants. *Two hours, counting one and one-half hours.*

3. DESCRIPTIVE GEOMETRY. Taught both by class exercises, in which the student demonstrates the various problems, and by instrumental solution in the drafting room, in which he makes accurate drawings illustrating these problems. This course includes the principles of shades, shadows, and perspective, all developed according to mathematical principles. *Two hours.*

4. MACHINE OR ARCHITECTURAL DRAFTING. Prerequisites, courses 1, 2 and 3. This course develops complete sets of working drawings, including bills of materials and estimates of either machine, architectural, or manual training subjects as the student may elect. *Two hours, counting one and one-half hours.*

5. WOOD-WORKING. An elementary course the purpose of which is to teach the students the intelligent use of the more common hand tools used in the shop, the care and the proper methods of sharpening them, and the correct method of making the principal joints used in carpentry and cabinet-making. As soon as each kind of joint is thoroughly understood, the student is taught its practical use in making a piece of furniture or apparatus. Special stress is placed on accuracy and neatness of workmanship, so that the student may early learn the necessity of careful, painstaking efforts in order to accomplish good results. *Two hours, counting one hour.*

6. PATTERN-MAKING. Prerequisite, course 5 or its equivalent. This course aims to give the student the elements of practical wood pattern-making. Each article made is to be a practical pattern which may be successfully cast in any foundry. The work is made very technical so that the student may become acquainted with actual shop methods so far as it is possible in a school shop. Accuracy and first-class workmanship are essential for success in this course. *Two hours, counting one and one-half hours.*

7. FORGING. Prerequisites, courses 5 and 6, or their equivalent. A practical course in the drawing, welding, and bending of iron for any purpose. The management of the fire and the forge is considered of first importance in this course. A large variety of articles in both iron and steel is made during the year, the work in steel coming the latter part of the year. Such tools are made from steel as cold chisels, lathe and planer tools, and special tools for special purposes. At frequent intervals during the year lectures and demonstrations are given on such subjects as the structure and manufacture of steel and iron, welding compounds, commercial shop methods, tempering, annealing, etc. *Two hours, counting one hour.*

8. MACHINE SHOP PRACTICE. Prerequisites, courses 5 and 6, or their equivalent. This course consists of exercises in chipping, filing, and fitting, lathe and planer works, and operations on the drill press. Skill in manipulation is not sought so much as a working knowledge of methods, a familiarity with the limitations and possibilities of the tools, and a greater insight into the practical, productive, and commercial side of shop methods and management. To this end, occasional lectures are given throughout the year on such subjects as commercial machine shop methods, time keeping systems, piece-work and premium plans, cost keeping, and stock room management. *Two hours, counting one and one-half hours.*

## APPLIED ARTS

Miss Binns

Miss Greenwood

Miss Fosdick

Miss Meritt

### Drawing

1. Freehand drawing; perspective. Charcoal drawing from the antique. Detail of figure and full figure from cast.

First year. Six hours studio. *Two hours.*

2. Drawing from the antique continued. Drawing from life. Painting from still-life and flowers.

Second year. Six hours studio. *Three hours.*

3. Water color painting from still life. Drawing and painting from life. Pastel, pen and ink, and pencil rendering.

Third year. Nine hours studio. *Three hours.*

4. Drawing and painting from life.

Fourth year. Six hours studio. *Two hours.*

### Modeling

1. Elementary modeling from the cast. Time sketches of ornament. Simple ornament from original designs. Principles and practice of plaster-casting in relief. Modeling for terra cotta.

Pottery building. Decoration of pottery by incising, inlaying and slip painting.

First year. Six hours studio. *Two hours.*

2. Modeling from the antique. Time sketches of ornament. Plaster casting in the round. Modeling for terra cotta from original designs. Decorative panels.

Pottery building. Decoration of pottery by incising, inlaying, and modeling.

Second year. Six hours studio. *Two and one-half hours.*

3. Modeling in relief from the antique and life. Time sketches in clay. Modeling for terra cotta from original designs. Decoration of wheel-made pottery by modeling, by underglaze, inlaid glazes. -

Third year. Six hours studio. *Three hours.*

4. Modeling from life. Application of the figure to modeled decoration. Working out of such problems as sundials, fountains. Decorative panels for terra cotta. Advanced work in pottery decoration.

Fourth year. Six hours studio. *Three hours.*

### Design

1. Designing of geometric ornament. The study of historic ornament. The designing of simple ornament in historic styles. Application of ornament to surface patterns, tiles, pottery, mosaics, etc.

First year. One hour lecture, four hours studio. *Two hours.*

2. Application of ornament continued. Illuminating book decoration, lettering, textiles, etc. Development of color.

Second year. One hour lecture, eight hours studio. *Three hours.*

3. Design as applied to Ceramics. Modeled designs. Wallpaper. Illuminating, "stained" glass, etc.

Third year. Nine hours studio. *Three hours.*

4. Architectural design. Application of ornament continued. Professional rendering.

Fourth year. Nine hours studio. *Three hours.*

## **Ceramic Craft**

Study and production of ceramic wares. Relation of use and beauty. Hand and machine work. Professional rendering.

Third year. One hour lecture and five hours studio. *Two hours.*

## **Artistic Anatomy**

Lectures dealing with the bones and muscles of the body, illustrated with analytical drawings. Construction of anatomical figure from memory.

Third year. One hour lecture, three hours studio. *Two hours.*

## **Chromatics**

Study of color. Oil painting. Still-life. Landscape.

Fourth year. Six hours studio. *Two hours.*

## **Composition**

Study of the laws of composition. The use of the figure in decoration. Application to book illustration, terra cotta, etc.

Fourth year. One hour lecture, five hours studio. *Two hours.*

## **History of Art**

Lectures and recitations illustrated with photographs and slides, on the history of art and the appreciation of beauty. The beginnings of art. Egyptian, Greek and Roman art. The arts and crafts of the Middle Ages. The painting and sculpture of the Renaissance. Modern art. Reinach's "History of Art Throughout the Ages," is used as a text-book with supplementary reading and keeping of note-books.

Third year. Two hours recitations. *Two hours.*

## **NORMAL ART**

**Miss Binns**

**Miss Greenwood**

**Miss Fosdick**

**Miss Meritt**

### **Drawing**

1. Same as Drawing 1 in Applied Arts Course.  
First year. Six hours studio.
2. Same as Drawing 2 in Applied Arts course.  
Second year. Nine hours studio.

### **Design**

Same as Design 1 in Applied Arts Course.  
First year. One hour lecture, four hours studio.

### **Modeling**

Elementary modeling from the cast. Modeling from memory of animals, etc. Story illustration. Sand table work. Simple decorated tiles, pottery, etc.

First year. Six hours studio.

### **Public School Drawing**

1. Exercises in blackboard drawing. Pencil drawing from nature. Time sketches. Pose drawing. Exercises in teaching.

First year. Six hours studio.

2. Exercises in blackboard drawing. Pencil drawing of animals, plants, etc. Illustrative drawing. Memory sketching.

Second year. Six hours studio.

### **Mechanical Drawing**

Geometric problems. Use of instruments. Reading of working drawings. Working drawings from freehand sketches. Perspective sketching from plan. Drawing to scale.

First year. Six hours studio.

### **Normal Training**

Lectures on the theory of teaching, methods of criticism, methods of supervision. Observation of work in local schools. Working out of art problems for the grades and High School. Keeping of note-books and portfolios of work. Exercises in teaching.

Second year. One hour lecture, six hours studio.

### **History of Art**

Same as in Applied Arts course.

Second year. Two hours lecture and recitations.

# DEPARTMENT OF INVESTIGATION AND RESEARCH

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## Clay Testing

Professor Binns

The State School of Ceramics is fitted and the experts in charge are qualified, for the professional examination and testing of clays for economic purposes. Such clays may be classified under the following heads:

- (a) Kaolin, white burning residual clay.
- (b) Kaolin, white burning, washed for market, used in the manufacture of pottery, porcelain and paper.
- (c) Ball clay, white or cream burning, sedimentary clay of high plasticity, used in pottery manufacture.
- (d) Stone ware clay, gray or cream burning, more or less sandy in character, used in stone ware manufacture.
- (e) Fire clay, buff or white burning, refractory, used for manufacture of fire brick.
- (f) Brick clay including colored clays and shales, used for the manufacture of brick and tile of various qualities and descriptions.

For each of the above classes special tests are necessary, and the charges made are proportionate to the work required.

A report upon each sample will be furnished and must be understood to refer only to the samples submitted unless the experts are instructed to examine the deposit and prepare their own samples, in which case special charges will be

made. The report includes physical tests, and chemical analysis where necessary.

Advice as to washing or other preparation of the clay is also given, together with an opinion as to the industry to which the material may be applied.

### **Industrial Problems**

**Professor Binns**

**Professor Montgomery**

The problems incidental to the manufacture of clay wares are regularly investigated at the school. Manufacturers are invited to present questions for study. Persons resident within the state are entitled to reasonable services without charge.





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1916/17

UNIVERSITY PUBLICATIONS

EIGHTY-FIRST YEAR — NO. 6

# The New York State School of Clay-Working and Ceramics

UNIVERSITY OF ILLINOIS LIBRARY



ALFRED, NEW YORK

1916-1917

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JUN 21 1917

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PUBLISHED BI-MONTHLY BY ALFRED UNIVERSITY  
MARCH, 1917

Entered January 25, 1902, as second-class matter  
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## **BOARD OF MANAGERS**

(Appointed annually by the Trustees of Alfred University)

BOOTHE C. DAVIS, President

JOHN J. MERRILL

WILLIAM R. CLARKE

V. A. BAGGS

D. S. BURDICK

# Calendar

## First Semester 1916-1917

		1916
Registration, Entrance Examinations	Wednesday	Sept. 20
Instruction begins	Thursday	Sept. 21
<b>Election Day</b>	<b>Tuesday</b>	Nov. 7
Thanksgiving Recess begins	Wednesday noon	Nov. 29
<b>THANKSGIVING RECESS</b>		
Instruction resumed	Monday morning	Dec. 4
Holiday Recess begins	Wednesday evening	Dec. 20
<b>HOLIDAY RECESS</b>		
		1917
Instruction resumed	Wednesday morning	Jan. 3
Midyear examinations begin	Monday	Jan. 22
Examinations end, Semester ends	Friday	Jan. 26

## Second Semester 1916-1917

Registration	Monday morning	Jan. 29
Spring Recess begins	Tuesday evening	Mar. 27
<b>SPRING RECESS</b>		
Instruction resumed	Wednesday morning	April 11
Final Examinations begin	Friday	May 25
Examinations end	Friday	June 1
Degrees conferred at University Commencement	Thursday	June 7

## First Semester 1917-1918

		1917
Entrance Examinations	Tuesday	Sept. 18
Registration	Wednesday	Sept. 19
Instruction begins	Thursday	Sept. 20
<b>Election Day</b>	<b>Tuesday</b>	Nov. 6
Thanksgiving Recess begins	Wednesday noon	Nov. 28
<b>THANKSGIVING RECESS</b>		
Instruction resumed	Monday morning	Dec. 3
Holiday Recess begins	Wednesday evening	Dec. 19
<b>HOLIDAY RECESS</b>		
		1918
Instruction resumed	Wednesday morning	Jan. 2
Midyear Examinations begin	Monday	Jan. 21
Examinations end, Semester ends	Friday	Jan. 25

## Second Semester 1917-1918

Semester begins	Monday morning	Jan. 28
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## OFFICERS OF INSTRUCTION

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BOOTHE COLWELL DAVIS, Ph.D., D.D., LL.D., President  
Professor of Ethics.

CHARLES F. BINNS, Sc.M., Director,  
Professor of Ceramic Technology.

JOSEPH B. SHAW, Cer. Eng.,  
Professor of Ceramic Engineering.

CHARLES H. MILLIGAN, A.B., S.B.,  
Professor of Chemistry.

M. ELSIE BINNS,  
Professor of Modeling and Pottery.

MARION L. FOSDICK,  
Professor of Drawing and Design.

## OTHER EMPLOYEES

---

CURTIS F. RANDOLPH,  
Treasurer and Accountant.

RUTH M. CARPENTER,  
Stenographer.

EVA B. MIDDAUGH,  
Matron.

JOSEPH JOHNSON,  
Foreman of Workshop.

A. L. WHITFORD,  
Janitor and Machinist.

## NEW YORK STATE SCHOOL OF CLAY- WORKING AND CERAMICS

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In the field of applied science and commercial engineering the subject of clay-working is becoming daily more important. To the architect and builder clay offers the most satisfactory fireproof material, to the housewife pottery is indispensable and to the artist clay and clay-wares afford at once a facile means of expression and a prominent feature of home decoration.

The problems which confront the clay-worker are unique. He must learn to win his material economically from the earth, to shape his wares with due regard to both utility and art, to glaze or otherwise finish them in a satisfactory manner and to burn the whole successfully upon a large scale. His education must therefore be comprehensive and complete. He must, in a word, be a specialist, and to this end the New York State School was established.

Chapter 383, Laws of New York State, 1900, provided for the construction and maintenance of the school, and in order to secure the necessary facilities for collateral branches of study Alfred University was chosen as the location.

For this work the University offers great advantages. Laboratories of chemistry and physics, libraries, museums of geology and natural history, workshops for manual training, and all the departments of general culture are available, so that the many and varied requirements of a liberal education are fully met.

The State of New York contains vast deposits of clays and shales at present lying dormant. It also contains large numbers of young men and women who are seeking profitable employment. The work of the school is to bring these together.

Neither the science nor the art is neglected. Attention is given to the improvement of methods of manufacture and the reduction of cost so that the resources of the State may be fully developed and that within its borders may be manufactured the clay-wares, both coarse and fine, necessary for its own consumption.

### Building and Equipment

The building of the New York State School of Clay-Working and Ceramics has been especially designed for the purposes of the school, and is located on land which was deeded by Alfred University to the people of the State of New York. It is built of red brick and terra cotta with gray trimmings and roofed with brown tile. The main building has a floor space of about thirteen thousand square feet, and a frontage of seventy-five feet.

To this has been added a fireproof wing measuring about 36 by 57 feet and three stories in height.

In the main basement are located a full battery of kilns, the heavy machinery for the manufacture of brick, tile, hollow blocks and roofing tile, the slip-making plant, cylinders for glaze preparation, and a workshop fitted with modern appliances for pottery and porcelain manufacture. There are also rooms for mold making and drying.

In the sub-basement are located the heating plant and fuel storage and a damp cellar.

On the principal floor are the executive offices, the technical laboratory, a lecture room, a room for furnaces, the chemical laboratory and balance room and a special kiln room for the Art department. On the second floor is the department of Design and Applied Art and on the third floor a lecture room and a studio for advanced work.

The motive power is supplied by two Otto gas engines, of 36 and 8 horse power, respectively.

The school maintains a complete technical library for reference and for the encouragement of independent reading and research. It also encourages membership and activity in the

New York State Students' Branch of the American Ceramic Society, which was chartered at Alfred in 1915, and in the Ceramic Guild organized by the students in Art.

### **Co-operation with New York State Ceramic Products Manufacturers' Association**

The school desires to co-operate to the fullest extent possible with the Ceramic interests of the State and to that end a Short Course in Ceramic Engineering is given every year in January or February, consisting of lectures by eminent ceramists brought to the school for the course which lasts three or four days.

This short course was originally given in response to the request of the New York State Ceramic Products Manufacturers' Association and has proven very valuable to the practical men who are desirous of keeping up to date in their field.

### **Courses Offered**

The courses of study which lead to a degree extend over a period of four years and embrace the science, technology and art special to clay-working. The ceramic work is elective as to the particular branch of clay-working to be followed.

The course in Ceramic Engineering is designed to qualify men to occupy positions as superintendents, scientific experts and ceramic chemists.

The course in Applied Arts is intended to fit the student for the designing and producing of artistic pottery.

### **Benefits of the School**

The demand for trained clay-workers has grown to considerable proportions during the last few years. Capital is becoming more and more interested in the development of clay lands and shale banks; nor is there any likelihood that this interest will decrease.

On the other hand the number of men who have studied in schools is very small compared with the openings to be

filled. Hitherto, no student who has passed through the school successfully has remained unemployed, and the director is continually in receipt of applications for persons qualified to fill responsible positions. Every effort is made by the faculty to place the students in communication with manufacturers desiring to offer them employment.

The student successfully pursuing the technical course will be able, presuming that his personal capacity is good, to take up the practical work of manufacturing clay wares. He will have had experience with every description of clay, and with the minerals and oxides used in preparing bodies and glazes. He will have acquired a knowledge of machinery and kilns which he will find of the greatest value; in short, he will be a trained man as regards the problems of clay-working.

Students who conscientiously pursue the course in applied art will be able to design and make artistic pottery, preparing their own clays and compounding their own glazes, if necessary.

### Physical Training

The aim of the work in physical training is to bring the whole body to its normal condition, to acquire ease and precision in movement, and to develop the health and strength of the student.

**GYMNASIUM.** The gymnasium is on the lower floor of Babcock Hall. It is equipped with chest weights, dumb bells, wands, Indian clubs, horizontal and parallel bars, rings, poles and floor mats. A dressing-room with individual lockers, a well equipped bathroom with shower baths, and a handball court are provided. The gymnasium is in charge of the physical director. All students, unless excused by the director on the advice of a physician, are required to do two semester hours of work during the freshman year and one during the sophomore year, under the direction of the instructor in physical training.

**ATHLETIC FIELD.** The athletic field embraces over three acres of level land. All intercollegiate contests in football,

baseball, and track athletics are held on this field. The field affords a running track (one-sixth of a mile). Appropriate apparatus for field sports is provided.

OUTDOOR SPORTS, including tennis, are in the immediate charge of the athletic association, which has a football team playing under intercollegiate rules, a baseball nine, and a basketball team. For tennis there are excellent courts and an annual tournament is maintained. Athletics, however, are not carried to extremes. The committee on athletics from the faculty, and the graduate manager exercise general supervision, for it is the purpose of the university to give due attention to the physical welfare of its students, and at the same time keep the physical in proper relation to the intellectual and moral development.

#### Fees per Semester

Athletic Fee.....	\$2 00
Reading Room Fee.....	1 00
College Paper Fiat Lux.....	75
Extras, for use of instruments and laboratory materials:	
Gymnasium fee (all Freshmen).....	1 00
Surveying.....	4 00
Chemistry Breakage Deposit, per year, Chem. 1.....	2 00
Chemistry Breakage Deposit, per year, Chem. 2, 3, 4, 5.....	5 00
Elementary Chemistry.....	4 00
Blowpipe Analysis and Mineralogy.....	4 00
Qualitative Analysis.....	5 00
Quantitative Analysis, Advanced Quantitative Analysis or Clay Analysis.....	5 00
Physics 1, Laboratory.....	1 50
Advanced Physics, Laboratory.....	2 50
Shop Fee.....	4 00
Graduation Fee.....	5 00

No tuition is charged to students who are prepared to enter the regular courses, but no student is entitled to free tuition in any college class not forming part of a course in the School of Ceramics nor are students registered in the college entitled to free tuition in the School of Ceramics in respect of any subject for which college credit is given.

Bills will be presented by the third Friday of the semester, and must be paid at the office of the treasurer by the fifth Friday of the semester.

## Rooms and Board

Rooms and board for women can be had at Ladies Hall, as follows:

Rooms furnished, with heat and lights, per semester.....	\$20 00 to \$30 00
Board, per week (subject to increase).....	4 25

Rooms and board for men can be had at Burdick Hall, as follows:

Rooms furnished, per semester.....	\$18 00 to \$24 00
Board per week, club plan, about.....	3 50

Gas for fuel and lights is paid for according to the amount used at 35 cents per thousand.

Rooms and board including fuel can be obtained in private families from \$5.00 to \$6.00 per week. Board in clubs organized and managed by the students themselves varies from \$3.50 to \$5.00 per week according to the means and inclinations of the students.

## Estimated Annual Expenses

Excluding cost of clothing and travel, one can go through a college year by close economy upon \$260.00; and by exercising care, upon \$300.00. An allowance of \$350.00 is comfortable and \$400.00 is liberal.

Board, \$3.50 to \$5.00 per week.....	\$126 00 to \$180 00
Rooms, \$18.00 to \$36.00 per semester.....	36 00 to 72 00
Gas, per year.....	5 00 to 8 00
Laundry, per year.....	12 00 to 20 00
Books.....	10 00 to 25 00
Class dues, etc.....	2 00 to 10 00
College tuition, incidentals and extras.....	69 00 to 85 00
 Total for year.....	 \$260 00 to \$400 00

## Seft-Support

Many of the graduates have been persons of very limited means who worked their way through college. While the school cannot guarantee work to all applicants, enterprising students can usually find employment in the town with satisfactory compensation for all the time they can profitably spare from their studies. Some earn enough to meet the greater

part of their expenses. Students should distinctly understand that when they attempt entire self-support they should lengthen their term of study.

### **Terms and Vacations**

The college year consists of two terms, or semesters, of about eighteen weeks each. There is a vacation at the holidays of about two weeks; a two weeks recess at Easter time and a summer vacation of about fifteen weeks.

### **Class Exercises**

The class exercise period is one hour in length; in laboratory work, however, the class exercise continues through two or more hours, as the case may be. There are no class exercises on Saturday or Sunday. The schedule of recitations is fixed by the faculty. Freshmen who fail to pass in at least half of their work in a semester are not eligible for registration the next semester. Sophomores must pass at least two-thirds of their work, and Juniors, Seniors and Specials at least three-quarters to make them eligible for registration the next semester.

### **Unit or Measure of Credit**

One class exercise per week for one term or semester, is taken as the unit or measure of credit, and is termed a semester hour. In each course leading to a degree one hundred and thirty-two semester hours are required.

The work of students in each subject is graded as A, excellent; B, good; C, fair; D, poor; E, conditioned failure; F, failure.

### **Absences and Excuses**

It is expected that no student will be absent from any class period except in case of necessity. Reasons for absence from classes are submitted to a committee of the faculty known as the Committee on Absences. All excuses are granted with the understanding that the work missed will be made up to the satisfaction of the instructor. Unexcused absences in

excess of twice the number of recitations per week will lower the grade one letter. Each absence occurring within three days preceding or following a recess shall count two, and each unexcused absence in excess of the number of recitations per week shall count two. Two unexcused tardinesses count as one unexcused absence. Absences, excused or unexcused, in excess of three times the number of recitations per week will be considered sufficient reasons for suspension from the course.

### **Examinations**

Final examinations are held at the close of each semester in addition to occasional written tests during the semester. Fees will be charged for all examinations taken by those not regular members of classes, or at other times than those appointed for the class examinations.

## ADMISSION

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Candidates for admission to the freshman class must be at least sixteen years of age and must present certificates of good moral character. The particular requirements for entrance are explained below. Preparatory work is estimated in "units." The "unit" represents a course of five recitations weekly throughout an academic year of the preparatory school. Fifteen "units" or an equivalent must be offered.

### Entrance Requirements

**ENGLISH.** Three units. The candidate must be familiar with elementary rhetoric, both as a science and an art, and must be proficient in spelling, punctuation, idiom and division into paragraphs. Preparation must include the work in English prescribed by the various college associations.

Each student must be able to pass an examination upon ten books selected from the list prescribed by the college entrance associations. The following ten are recommended: Shakespeare's *Julius Cæsar*, and *The Merchant of Venice*; *The Sir Roger de Coverly Papers*; Goldsmith's *The Deserted Village*; Scott's *Ivanhoe*; Hawthorne's *The House of the Seven Gables*; Irving's *Sketch Book*; Ruskin's *Sesame and Lilies*; Lowell's *The Vision of Sir Launfal*; Longfellow's *Courtship of Miles Standish*.

In addition to the above a thorough study of each of the works named below is required. The examination will be upon subject matter, form and structure.

Shakespeare's *Macbeth*; Milton's *L'Allegro*, *Il Penseroso* and *Comus*; or Tennyson's *Idylls of the King*; Burke's Speech on Conciliation with America, or Washington's Farewell Address and Webster's *Bunker Hill Oration*; Macaulay's *Life of Johnson*, or Carlyle's *Essay on Burns*.

FOREIGN LANGUAGES. 4 units. Latin grammar and composition; Cæsar, four books of the Gallic War; Cicero, six orations; Virgil, six books of the Aeneid, or equivalents; or four units from not more than three of the following: Latin, Greek, German, French, Spanish.

MATHEMATICS. 2 units. Elementary Algebra, including fundamental operations, factoring, fractions, ratio, proportion, radicals, quadratics; Plane Geometry, including the straight line, angle, circle, proportion, similarity, and areas.

SCIENCE. 1 unit. Biology, Botany, Physiology, Zoology, Physical Geography, Physics or Chemistry. Any one may be offered.

ELECTIVE. 5 units in addition to the above subjects. Candidates may substitute one unit of science and one unit of advanced mathematics for two units of foreign language. Candidates for the degree in Ceramic Engineering should offer Solid Geometry and Intermediate Algebra.

### Summary

English.....	3 units
Mathematics.....	2 units
Foreign Languages.....	4 units
Science.....	1 unit
Elective.....	5 units

Admission is gained either on certificate or on examination, as follows:

### Admission on Certificate

REGENTS' CREDENTIALS. The credentials of the University of the State of New York are accepted instead of an examination in the subjects required for admission, so far as they cover these requirements. (For description of subjects, see *Entrance Requirements*.)

PRINCIPAL'S CERTIFICATE. Certificates are also received from principals of preparatory or high schools outside of New York State, provided such schools are known to the faculty for thoroughness of instruction. Such certificate must

specify, in connection with each subject, the extent to which it has been pursued, by giving the text-book used, the method of instruction, the amount of time given to it, the date of the final examination, the degree of the applicant's proficiency, and must clearly show that the student has met the requirements in every detail. The school furnishes blank forms for such certificates upon application of principals of approved schools. Principals of preparatory schools who desire to have their students admitted on certificate are invited to correspond with the director.

#### **Admission on Examination**

Candidates who fail to present satisfactory certificates must pass a written examination in the required subjects.

For the convenience of students not having such certificates, entrance examinations are held at Alfred on the day preceding registration day, of each year.

#### **Conditioned Students**

No student can enter the freshman class conditioned in more than two academic subjects. These conditions must be removed within one year.

#### **Admission to Advanced Standing**

Students from other schools, having a course equivalent to that of the New York State School, may enter at the point from which they take dismissal, upon presentation of satisfactory certificates of standing and character, including an honorable dismissal.

#### **Senior Thesis**

There is required of each candidate for a degree a thesis, for which a credit of two hours in each semester of the Senior year is given. The title of the thesis must be chosen in the field of Ceramics not later than November 1, and must be approved by the director. The thesis shall embody the results

of actual independent research, and must be submitted for approval not later than May 1. A typewritten copy must be deposited with the director.\*

### Graduation

While no student will be permitted to graduate with a smaller credit than one hundred and thirty-two semester hours, four full years of resident work will be required in either course. Upon students who satisfactorily complete the course in Ceramic Engineering, Alfred University will confer the degree of Bachelor of Science in Ceramic Engineering, and upon students who satisfactorily complete the course in Applied Arts the degree of Bachelor of Science in Applied Arts.

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\* Any student electing to work in the summer time at an approved manufacturing plant may be excused from a thesis and will receive due credit at the discretion of the Director.

# COURSES OF STUDY

## Course in Ceramic Engineering

### First Year

#### *First Semester*

Mathematics, Algebra, Trigonometry.....	5
Chemistry 1.....	3
German or French.....	3
English 1.....	3
Ceramics 1.....	1
Physical Training.....	1
Sociology and Ethics.....	1

17

#### *Second Semester*

Mathematics, Analytical Geometry.....	5
Chemistry 1.....	3
German or French.....	3
English 1.....	3
Ceramics 1.....	1
Physical Training.....	1
Sociology and Ethics.....	1

17

### Second Year

#### *First Semester*

Mathematics, Differential Calculus.....	3
Physics 1.....	5
Chemistry 2, Qualitative Analysis.....	3
German or French.....	2
Ceramics 2.....	3
Physical Training.....	1

17

#### *Second Semester*

Mathematics, Integral Calculus.....	3
Physics 1.....	5
Chemistry 2, Qualitative Analysis.....	3
German or French.....	2
Ceramics 2.....	3
Physical Training.....	1

17

### Third Year

#### *First Semester*

Mechanics.....	3
Quantitative Analysis.....	3
Physical Chemistry.....	3
Ceramics 3.....	3
Geology 1.....	2
Drafting, Projections.....	2

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#### *Second Semester*

Applied Physics.....	3
Silicate Analysis.....	3
Physical Chemistry.....	3
Ceramics 3.....	3
Geology 3.....	2
Drafting, Freehand Lettering.....	2

16

### Fourth Year

#### *First Semester*

Surveying.....	2
Ceramics 4.....	2
Ceramics 6.....	5
Thesis or Summer work.....	2
Drafting, Ceramic Design.....	2
Elective.....	3

16

#### *Second Semester*

Surveying.....	2
Ceramics 4.....	2
Ceramics 5.....	5
Thesis or Summer work.....	2
Drafting, Ceramic Design.....	2
Elective.....	3

16

## Course in Applied Arts

### First Year

	Semester Hours
Drawing 1, Studio Practice.....	2
Modeling 1, Studio Practice.....	1
Design 1, Lecture and Studio.....	2
Ceramics 1, Lecture.....	1
English 1, English Composition and Rhetoric.....	3
Modern Language.....	3
Chemistry 1.....	3
Physical Training.....	1
Ethics 1.....	1
	17

### Second Year

Drawing 2, Studio Practice.....	2
Modeling 2, Studio Practice.....	2
Design 2, Lecture and Studio.....	2
Ceramics 2, Lecture and Laboratory.....	3
English 8.....	2
Modern Language.....	3
Physical Training.....	1
Elementary Drafting.....	2
	17

### Third Year

Drawing 3, Studio Practice.....	3
Modeling 3, Studio Practice.....	2
Design 3, Lecture and Studio.....	3
Ceramic Craft 2, Lecture and Studio.....	2
Artistic Anatomy, Lecture and Studio.....	2
History of Art, Lecture.....	2
Ceramics 7, Laboratory.....	2
	16

### Fourth Year

Drawing 4, Studio Practice.....	3
Modeling 4, Studio Practice.....	2
Design 4, Lecture and Studio.....	3
Composition, Lecture and Studio.....	2
Chromatics, Studio Practice.....	2
Ceramics 8, Laboratory.....	2
Ceramics 9, Thesis.....	2
	16

## SHORT COURSES

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Short courses of two years each are offered and are intended to meet the needs of persons who are unable to qualify for a course leading to a degree. Applicants must be at least 18 years of age and must give evidence of ability to receive instruction.

While these courses are carefully planned so as to make the best possible use of the time available, it is hoped that no student will rest content with a short course if the requirements for entrance to a four years' course can possibly be met. No subject for which credit is given in a short course can be applied to remove entrance conditions to a full course.

### Short Course in Clay-Working

	First Year	Semester Hours
Mathematics		3
Chemistry 1, General Chemistry, Lecture and Laboratory		3
English 1		3
Ceramics 1		1
Ceramics 2		3
Industrial Mechanics 1		1
Industrial Mechanics 5		1
Physical Training 1		1
Ethics 1		1
		17
	Second Year	
Chemistry 2, Qualitative and Quantitative Analysis		3
Physics		5
Ceramics 3		3
Ceramics 4		2
Industrial Mechanics 2		1½
Industrial Mechanics 4		1½
Industrial Mechanics 8		1½
		17½

For particulars of the courses see the description of the courses in Ceramic Engineering.

## Short Course in Normal Art

### First Year

	Studio Hours
Drawing 1, Studio Practice (same as in Applied Arts).....	6
Design 1, Lecture and Studio (same as in Applied Arts).....	6
Modeling 1, Studio Practice.....	6
Public School Drawing 1, Studio Practice.....	6
Mechanical Drawing, Studio Practice.....	6
	<hr/> 30

### Second Year

Drawing 2, Studio Practice (same as in Applied Arts).....	9
Public School Drawing 2, Studio Practice.....	6
Normal Training, Lecture and Studio.....	9
History of Art, Lecture and Recitations.....	6
	<hr/> 30

For courses in Ethics, English, Modern Languages, Physics, Mathematics, Geology and Industrial Mechanics, see College Catalogue of Alfred University.

# DEPARTMENTS OF INSTRUCTION

## Description of Courses

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### CERAMICS

Professor Binns

Professor Shaw

1. Lectures on the origin, properties and uses of clays and other ceramic materials. Types of ware and methods of manufacture. Elementary glaze composition.

Laboratory practice in the operations involved in manufacture. The preparation and use of forms, molds and dies. Making saggers, jiggering, pressing and casting pottery. Making brick and tile. The general use of the machine equipment.

First year. One hour lecture and two hours laboratory.  
*One hour.*

Professor Binns.

2. Lectures on the occurrence, classification and identification of clays. The manufacture of all classes of ceramic products. The theory and practice of drying and burning. The compounding of clay mixtures, and the production and use of glazes and colors. The glaze formula.

Laboratory practice in clay testing. The measurement of the physical properties of clays and the compounding of bodies and glazes. Kiln firing.

Second year. Two hours lecture and four hours laboratory.  
*Three hours.*

Professor Binns.

3. Lectures on the winning and preparation of clays. The technology of the ceramic industries. The mineralogical,

chemical and physical changes which take place in clays, bodies and glazes during their preparation, drying and burning. The theory and practice of pyrometry.

Laboratory practice in the production and application of slips, engobes, enamels, glazes and colors. The production, decoration and firing of finished wares.

Third year. Two hours lecture and four hours laboratory.  
*Three hours.*

Professor Shaw.

4. Recitations on the calculations involved in the mixing and blending of ceramic materials in bodies, glazes and colors. The use of analyses. The designing of series for glaze study. Chemical and physical problems in gas volume relations, heat, combustion and the calorific value of fuels.

Fourth year. Two hours recitation. *Two hours.*

Professor Shaw.

5. Lectures on the raw materials, preparation, compounding and manufacture of the various types of glass and enamel. Laboratory practice in the production and testing of various types of glass and enamel, special emphasis being laid on the refractories used in these industries.

Fourth year. Two hours lecture and twelve hours laboratory.  
*Five hours.*

Professor Shaw.

6. Lectures on the raw materials, preparation, compounding and manufacture of limes, plasters, natural and Portland cements. The theory of hydraulicity and the reactions involved in manufacture. Methods of testing.

Laboratory practice in the production and testing of lime, plaster and cement and the study of their physical properties. The use of the electric furnace in the study of dehydration, lag curves, melting points, eutectics and the viscosity of fused minerals and mineral mixtures.

Fourth year. Two hours lecture and twelve hours laboratory. *Five hours.*

Professor Shaw.

7. Laboratory practice for art students. The production of form by molding. The preparation of glazes for decorative pottery.

Third year. Four hours laboratory. *One hour.*

Professor Binns.

8. Laboratory practice in continuation of course 8. The preparation and use of underglaze colors. Glazes for colors. Colored glazes. The use of the potter's wheel.

Fourth year. Four hours laboratory. *One hour.*

Professor Binns.

9. Thesis.

Fourth year. Six hours laboratory. *Two hours.*

Professor Binns, Professor Shaw.

## **CHEMISTRY**

**Professor Bole**

**Professor Milligan**

CHEMISTRY 1. A thorough course in the theory and principles of the science of chemistry, covering Alexander Smith's College Chemistry. It is supposed that students entering this course shall have had high school physics, and preferably high school chemistry. Lecture and recitations, *two hours*, laboratory *one hour*.

2. **QUALITATIVE ANALYSIS.** The detailed separation of the metals, non-metals and acid radicals. The student is required to apply the theory learned in course 1 and to explain the reason for each reaction. The ionic theory, solubility product, law of concentration, hydrolysis, amphoteric hydroxides, etc., are studied and application made in the separations. A laboratory course consisting of four hours of laboratory work a week throughout the year, with one hour lecture. Text-book, Stieglitz. Prerequisite, course 1 or its equivalent. *Three hours.*

3. **QUANTITATIVE ANALYSIS.** A laboratory course of four hours with a weekly lecture throughout the year. The work

embraces the principal methods of gravimetric, volumetric and electro-chemical analysis, and the use of the reference works and the chemical journals. This course gives quantitative application of the laws which are studied qualitatively in course 2. Prerequisites, courses 1 and 2. *Three hours.*

4. TECHNICAL ANALYSIS. Lectures and laboratory work. The analysis of silicate and carbonate rocks is carried out in detail. The student is given the opportunity to compare different methods of analysis rather than to follow any specified method. Prerequisites, courses 1, 2 and 3. *Three hours. I.*

5. GAS AND FUEL ANALYSIS. One hour lecture and four hours laboratory. The complete analysis of flue, illuminating and natural gases is carried out in the laboratory. The study of the various fuels is taken up and different samples are analyzed by the student. The student is taught to use the Orsat and Hempel's apparatus and the Parr calorimeter. Prerequisites, courses 1, 2, 3, 4. *Three hours. II.*

6. PHYSICAL CHEMISTRY. Introduction to the concepts of physical chemistry. The first semester is taken up with a detailed study of the quantitative laws governing gases, liquids, solids, and substances in solution. During the second term a study of the phase-rule and electro-chemistry is taken up and a detailed study of the laws of chemical equilibrium and applications of the same is carried out. Prerequisites, courses 1 and 2. *Two hours.*

## APPLIED ARTS

Miss Binns

Miss Fosdick

### Drawing

1. Freehand drawing; perspective. Charcoal drawing from the antique. Detail of figure and full figure from cast.

First year. Six hours studio. *Two hours.*

2. Drawing from the antique continued. Drawing from life. Painting from still-life and flowers.

Second year. Six hours studio. *Two hours.*

3. Water color painting from still life. Drawing and painting from life. Pastel, pen and ink, and pencil rendering.

Third year. Six hours studio. *Three hours.*

4. Drawing and painting from life.

Fourth year. Six hours studio. *Three hours.*

### Modeling

1. Elementary modeling from the cast. Time sketches of ornament. Simple ornament from original designs. Principles and practice of plaster-casting in relief. Modeling for terra cotta.

Pottery building. Decoration of pottery by incising, inlaying and slip painting.

First year. Six hours studio. *One hour.*

2. Modeling from the antique. Time sketches of ornament. Plaster casting in the round. Modeling for terra cotta from original designs. Decorative panels.

Pottery building. Decoration of pottery by incising, inlaying, and modeling.

Second year. Six hours studio. *Two hours.*

3. Modeling in relief from the antique and life. Time sketches in clay. Modeling for terra cotta from original designs. Decoration of wheel-made pottery by modeling, by underglaze, inlaid glazes.

Third year. Six hours studio. *Two hours.*

4. Modeling from life. Application of the figure to modeled decoration. Working out of such problems as sundials, fountains. Decorative panels for terra cotta. Advanced work in pottery decoration.

Fourth year. Six hours studio. *Two hours.*

### Design

1. Designing of geometric ornament. The study of historic ornament. The designing of simple ornament in historic styles. Application of ornament to surface patterns, tiles, pottery, mosaics, etc.

First year. One hour lecture, four hours studio. *Two hours.*

2. Application of ornament continued. Illuminating book decoration, lettering, textiles, etc. Development of color.

Second year. One hour lecture, five hours studio. *Two hours.*

3. Design as applied to Ceramics. Modeled designs. Wall-paper. Illuminating, "stained" glass, etc.

Third year. One hour lecture, five hours studio. *Three hours.*

4. Architectural design. Application of ornament continued. Professional rendering.

Fourth year. One hour lecture, five hours studio. *Three hours.*

### **Ceramic Craft**

Study and production of ceramic wares. Relation of use and beauty. Hand and machine work. Professional rendering.

Third year. One hour lecture and three hours studio. *Two hours.*

### **Artistic Anatomy**

Lectures dealing with the bones and muscles of the body, illustrated with analytical drawings. Construction of anatomical figure from memory.

Third year. One hour lecture, three hours studio. *Two hours.*

### **Chromatics**

Study of color. Oil painting. Still-life. Landscape.

Fourth year. Four hours studio. *Two hours.*

### **Composition**

Study of the laws of composition. The use of the figure in decoration. Application to book illustration, terra cotta, etc.

Fourth year. One hour lecture, three hours studio. *Two hours.*

## History of Art

Lectures and recitations illustrated with photographs and slides, on the history of art and the appreciation of beauty. The beginnings of art. Egyptian, Greek and Roman art. The arts and crafts of the Middle Ages. The painting and sculpture of the Renaissance. Modern art. Reinach's "History of Art Throughout the Ages," is used as a text-book with supplementary reading and keeping of note-books.

Third year. Two hours recitations. *Two hours.*

## NORMAL ART

Miss Binns

Miss Greenwood

Miss Fosdick

### Drawing

1. Same as Drawing 1 in Applied Arts Course.

First year. Six hours studio.

2. Same as Drawing 2 in Applied Arts Course.

Second year. Nine hours studio.

### Design

Same as Design 1 in Applied Arts Course.

First year. One hour lecture, four hours studio.

### Modeling

Elementary modeling from the cast. Modeling from memory of animals, etc. Story illustration. Sand table work. Simple decorated tiles, pottery, etc.

First year. Six hours studio.

### Public School Drawing

1. Exercises in blackboard drawing. Pencil drawing from nature. Time sketches. Pose drawing. Exercises in teaching.

First year. Six hours studio.

2. Exercises in blackboard drawing. Pencil drawing of animals, plants, etc. Illustrative drawing. Memory sketching.

Second year. Six hours studio.

## **Mechanical Drawing**

Geometric problems. Use of instruments. Reading of working drawings. Working drawings from freehand sketches. Perspective sketching from plan. Drawing to scale.

First year. Six hours studio.

## **Normal Training**

Lectures on the theory of teaching, methods of criticism, methods of supervision. Observation of work in local schools. Working out of art problems for the grades and High School. Keeping of note-books and portfolios of work. Exercises in teaching.

Second year. One hour lecture, six hours studio.

## **History of Art**

Same as in Applied Arts Course.

Second year. Two hours lecture and recitations.

# DEPARTMENT OF INVESTIGATION AND RESEARCH

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## Clay Testing

Professor Binns

The State School, of Ceramics is fitted, and the experts in charge are qualified, for the professional examination and testing of clays for economic purposes. Such clays may be classified under the following heads:

- (a) Kaolin, white burning residual clay.
- (b) Kaolin, white burning, washed for market, used in the manufacture of pottery, porcelain and paper.
- (c) Ball clay, white or cream burning, sedimentary clay of high plasticity, used in pottery manufacture.
- (d) Stone ware clay, gray or cream burning, more or less sandy in character, used in stone ware manufacture.
- (e) Fire clay, buff or white burning, refractory, used for manufacture of fire brick.
- (f) Brick clay including colored clays and shales, used for the manufacture of brick and tile of various qualities and descriptions.

For each of the above classes special tests are necessary, and the charges made are proportionate to the work required.

A report upon each sample will be furnished and must be understood to refer only to the samples submitted unless the experts are instructed to examine the deposit and prepare their own samples, in which case special charges will be made. The report includes physical tests, and chemical analysis where necessary.

Advice as to washing or other preparation of the clay is also given, together with an opinion as to the industry to which the material may be applied.

## **Industrial Problems**

**Professor Binns**

**Professor Shaw**

The problems incidental to the manufacture of clay wares are regularly investigated at the school. Manufacturers are invited to present questions for study. Persons resident within the state are entitled to reasonable services without charge.









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UNIVERSITY PUBLICATIONS

EIGHTY-SECOND YEAR—NO. 4

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# The New York State School of Clay-Working and Ceramics



ALFRED, NEW YORK

1917-1918

PUBLISHED BI-MONTHLY BY ALFRED UNIVERSITY  
MARCH, 1918

Entered January 25, 1902, as second-class matter  
Post Office, Alfred, N. Y.  
Under Act of Congress of July 16, 1894

ACCEPTANCE FOR MAILING AT SPECIAL RATE OF POSTAGE  
PROVIDED FOR IN SECTION 1103, ACT OF OCTOBER 3,  
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## **BOARD OF MANAGERS**

(Appointed annually by the Trustees of Alfred University)

BOOTHE C. DAVIS, President

JOHN J. MERRILL

WILLIAM R. CLARKE

V. A. BAGGS

D. S. BURDICK

# Calendar

## Second Semester 1917-1918

1918

Semester begins	Monday morning	Jan. 28
Spring Recess begins	Tuesday evening	Mar. 26
<b>SPRING RECESS</b>		
Instruction resumed	Wednesday morning	April 10
Final Examinations begin	Friday	May 24
Examinations end	Friday	May 31
Degrees conferred at A. U. Commencement	Wednesday	June 5

## First Term 1918-1919

1918

Entrance Examinations	Tuesday	Sept. 24
Registration	Wednesday	Sept. 25
Instruction begins	Thursday	Sept. 26
Thanksgiving Recess begins	Wednesday noon	Nov. 27
<b>THANKSGIVING RECESS</b>		
Instruction resumed	Monday noon	Dec. 2
Term examinations begin	Monday	Dec. 16
Term ends	Wednesday evening	Dec. 18
<b>HOLIDAY RECESS</b>		

## Second Term

1919

Instruction begins	Thursday	Jan. 2
Term Examinations begin	Monday	Mar. 17
Term ends	Wednesday evening	Mar. 19

## SPRING RECESS

## Third Term

Instruction begins	Wednesday	Mar. 26
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## OFFICERS OF INSTRUCTION

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BOOTHE COLWELL DAVIS, Ph.D., D.D., LL.D., President  
Professor of Ethics.

CHARLES F. BINNS, Sc.M., Director,  
Professor of Ceramic Technology.

JOSEPH B. SHAW, Cer. Eng.,  
Professor of Ceramic Engineering.

GEORGE A. BOLE, A.M.,  
Professor of Chemistry.

M. ELSIE BINNS,  
Professor of Modeling and Pottery.

MARION L. FOSDICK,  
Professor of Drawing and Design.

## OTHER EMPLOYEES

---

CURTIS F. RANDOLPH,  
Treasurer and Accountant.

RUTH M. CARPENTER,  
Stenographer.

EVA B. MIDDAUGH,  
Matron.

ROBERT F. SHERWOOD,  
Foreman of Workshop.

A. L. WHITFORD,  
Janitor and Machinist.

## NEW YORK STATE SCHOOL OF CLAY- WORKING AND CERAMICS

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In the field of applied science and commercial engineering the subject of clay-working is becoming daily more important. To the architect and builder clay offers the most satisfactory fireproof material, to the housewife pottery is indispensable and to the artist clay and clay-wares afford at once a facile means of expression and a prominent feature of home decoration.

The problems which confront the clay-worker are unique. He must learn to win his material economically from the earth, to shape his wares with due regard to both utility and art, to glaze or otherwise finish them in a satisfactory manner and to burn the whole successfully upon a large scale. His education must therefore be comprehensive and complete. He must, in a word, be a specialist, and to this end the New York State School was established.

Chapter 383, Laws of New York State, 1900, provided for the construction and maintenance of the school, and in order to secure the necessary facilities for collateral branches of study Alfred University was chosen as the location.

For this work the University offers great advantages. Laboratories of chemistry and physics, libraries, museums of geology and natural history, workshops for manual training, and all the departments of general culture are available, so that the many and varied requirements of a liberal education are fully met.

The State of New York contains vast deposits of clays and shales at present lying dormant. It also contains large numbers of young men and women who are seeking profitable employment. The work of the school is to bring these together.

Neither the science nor the art is neglected. Attention is given to the improvement of methods of manufacture and the reduction of cost so that the resources of the State may be fully developed and that within its borders may be manufactured the clay-wares, both coarse and fine, necessary for its own consumption.

### Building and Equipment

The building of the New York State School of Clay-Working and Ceramics has been especially designed for the purposes of the school, and is located on land which was deeded by Alfred University to the people of the State of New York. It is built of red brick and terra cotta with gray trimmings and roofed with brown tile. The main building has a floor space of about thirteen thousand square feet, and a frontage of seventy-five feet.

To this has been added a fireproof wing measuring about 36 by 57 feet and three stories in height.

In the main basement are located a full battery of kilns, the heavy machinery for the manufacture of brick, tile, hollow blocks and roofing tile, the slip-making plant, cylinders for glaze preparation, and a workshop fitted with modern appliances for pottery and porcelain manufacture. There are also rooms for mold making and drying.

In the sub-basement are located the heating plant and fuel storage and a damp cellar.

On the principal floor are the executive offices, the technical laboratory, a lecture room, a room for furnaces, the chemical laboratory and balance room and a special kiln room for the Art department. On the second floor is the department of Design and Applied Art and on the third floor a lecture room and a studio for advanced work.

The motive power is supplied by two Otto gas engines, of 36 and 8 horse power, respectively.

The school maintains a complete technical library for reference and for the encouragement of independent reading and research. It also encourages membership and activity in the

New York State Students' Branch of the American Ceramic Society, which was chartered at Alfred in 1915, and in the Ceramic Guild organized by the students in Art.

### **Co-operation with New York State Manufacturers**

The school desires to co-operate to the fullest extent possible with the Ceramic interests of the State and to that end a Short Course in Ceramic Engineering is given every year in January or February, consisting of lectures by eminent ceramists brought to the school for the course which lasts three or four days.

### **Courses Offered**

The courses of study which lead to a degree extend over a period of four years and embrace the science, technology and art special to clay-working. The ceramic work is elective as to the particular branch of clay-working to be followed.

The course in Ceramic Engineering is designed to qualify men to occupy positions as superintendents, scientific experts and ceramic chemists.

The course in Applied Arts is intended to fit the student for the designing and producing of artistic pottery.

### **Benefits of the School**

The demand for trained clay-workers has grown to considerable proportions during the last few years. Capital is becoming more and more interested in the development of clay lands and shale banks; nor is there any likelihood that this interest will decrease.

On the other hand the number of men who have studied in schools is very small compared with the openings to be filled. Hitherto, no student who has passed through the school successfully has remained unemployed, and the director is continually in receipt of applications for persons qualified to fill responsible positions. Every effort is made by the faculty to place the students in communication with manufacturers desiring to offer them employment.

The student successfully pursuing the technical course will be able, presuming that his personal capacity is good, to take up the practical work of manufacturing clay wares. He will have had experience with every description of clay, and with the minerals and oxides used in preparing bodies and glazes. He will have acquired a knowledge of machinery and kilns which he will find of the greatest value; in short, he will be a trained man as regards the problems of clay-working.

Students who conscientiously pursue the course in applied art will be able to design and make artistic pottery, preparing their own clays and compounding their own glazes, if necessary.

### Physical Training

The aim of the work in physical training is to bring the whole body to its normal condition, to acquire ease and precision in movement, and to develop the health and strength of the student.

**GYMNASIUM.** The gymnasium floor is in Alumni Hall. It is equipped with chest weights, dumb bells, wands, Indian clubs, horizontal and parallel bars, and mats. Dressing rooms with individual lockers, are provided. The gymnasium is in charge of the physical director. The alumni and other friends of the university have started a fund known as the "Davis Gymnasium Fund" to provide a more commodious gymnasium.

**ATHLETIC FIELD.** The athletic field embraces over three acres of level land. All intercollegiate contests in football, baseball, and track athletics are held on this field. The field affords a running track (one-sixth of a mile). Appropriate apparatus for field sports is provided.

**OUTDOOR SPORTS**, including tennis, are in the immediate charge of the athletic association, which has a football team playing under intercollegiate rules, a baseball nine, and a basketball team. For tennis there are excellent courts and an annual tournament is maintained. Athletics, however, are not carried to extremes. The committee on athletics from

the faculty, and the graduate manager exercise general supervision, for it is the purpose of the university to give due attention to the physical welfare of its students, and at the same time keep the physical in proper relation to the intellectual and moral development.

### Fees per Year

Athletics.....	\$4 00
Reading Room.....	2 00
College Paper (Fiat Lux).....	1 50
Extras, for use of instruments, laboratory materials, etc.:	
Gymnasium (Freshmen, Sophomores).....	2 00
Surveying.....	8 00
Chemistry Breakage Deposit, Chem. 1, 8.....	2 00
Chemistry Breakage Deposit, Chem. 2, 3, 4, 5.....	5 00
Elementary Chemistry.....	10 00
Advanced Chemistry, each course.....	10 00
Physics 1, Laboratory.....	3 00
Advanced Physics, Laboratory.....	5 00
Shop.....	8 00
Special examination, each.....	1 00
Graduation.....	5 00

No tuition is charged to students who are prepared to enter the regular courses, but no student is entitled to free tuition in any college class not forming part of a course in the School of Ceramics nor are students registered in the college entitled to free tuition in the School of Ceramics in respect of any subject for which college credit is given.

Bills for college fees are due in two instalments, viz: on or before October fifteenth, and February fifteenth, and must be paid at the office of the treasurer within ten days thereafter.

### Rooms and Board

Rooms and board for women can be had at Ladies Hall, as follows:

Rooms furnished, with heat and light, per year.....	\$40 00 to \$72 00
Board, per week (subject to increase).....	4 50

Rooms and board for men can be had at Burdick Hall, as follows:

Rooms furnished, with heat and light, per year.....	\$48 00 to \$64 00
Board per week, club plan, about.....	3 75

Rooms and board including fuel can be obtained in private families from \$5.00 to \$6.00 per week. Board in clubs organized and managed by the students themselves varies from \$3.50 to \$5.00 per week according to the means and inclinations of the students.

### Estimated Annual Expenses

Excluding cost of clothing and travel, one can go through a college year by close economy upon \$270.00; and by exercising care, upon \$300.00. An allowance of \$350.00 is comfortable and \$400.00 is liberal.

Board, \$3.50 to \$5.00 per week.....	\$126 00 to \$180 00
Rooms.....	40 00 to 72 00
Laundry .....	12 00 to 18 00
Books.....	10 00 to 25 00
Class dues, etc.....	2 00 to 10 00
College tuition, incidentals and extras.....	79 00 to 95 00
 Total for year.....	 \$269 00 to \$400 00

### Self-Support

Many of the graduates have been persons of very limited means who worked their way through college. While the school cannot guarantee work to all applicants, enterprising students can usually find employment in the town with satisfactory compensation for all the time they can profitably spare from their studies. Some earn enough to meet the greater part of their expenses. Students should distinctly understand that when they attempt entire self-support they should lengthen their term of study.

### College Year

The college year consists of three terms of about twelve weeks each. There is a vacation at the holidays of about two weeks; a week's recess near Easter and a summer vacation of about fourteen weeks.

### Class Exercises

The class period is one hour in length; in laboratory work, however, the class period is two hours. There are no classes

on Saturday or Sunday. Each student is expected to have at least sixteen hours per week, and may not register for more than seventeen with the following exceptions: (1) If a student has no standing less than B in the preceding term he may register for eighteen hours. (2) Students who have a grade of A in more than half their work may register for more than eighteen hours upon the approval of the Faculty.

Freshmen who fail to pass in at least half of their work in a term are not eligible for registration the next term. Sophomores must pass at least two-thirds of their work, and Juniors, Seniors and Specials at least three-quarters to make them eligible for registration the next term.

### **Unit of Measure or Credit**

One class period per week for one term, is taken as the unit of credit, and is called a term hour. In each course one hundred and ninety-eight term hours are required.

The work of students in each subject is graded as A, excellent; B, good; C, fair; D, poor; E, conditioned failure; F, failure.

### **Absences and Excuses**

It is expected that no student will be absent from any class period except in case of necessity. Reasons for absence from classes are submitted to a committee of the faculty known as the Committee on Absences. All excuses are granted with the understanding that the work missed will be made up to the satisfaction of the instructor. Unexcused absences in excess of twice the number of recitations per week will lower the grade one letter. Each absence occurring within three days preceding or following a recess shall count two, and each unexcused absence in excess of the number of recitations per week shall count two. Two unexcused tardinesses count as one unexcused absence. Absences, excused or unexcused, in excess of three times the number of recitations per week will be considered sufficient reasons for suspension from the course.

## **Examinations**

Final examinations are held at the close of each term in addition to occasional written tests during the term. Fees will be charged for all examinations taken by those not regular members of classes, or at other times than those appointed for the class examinations.

## ADMISSION

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Candidates for admission to the freshman class must be at least sixteen years of age and must present certificates of good moral character. The particular requirements for entrance are explained below. Preparatory work is estimated in "units." The "unit" represents a course of five recitations weekly throughout an academic year of the preparatory school. Fifteen "units" or an equivalent must be offered.

### Entrance Requirements

**ENGLISH.** 3 units. The candidate must be familiar with elementary rhetoric, both as a science and an art, and must be proficient in spelling, punctuation, idiom and division into paragraphs. Preparation must include the work in English prescribed by the various college associations.

Each student must be able to pass an examination upon ten books selected from the list prescribed by the college entrance associations. The following ten are recommended: Shakespeare's *Julius Cæsar*, and *The Merchant of Venice*; *The Sir Roger de Coverly Papers*; Goldsmith's *The Deserted Village*; Scott's *Ivanhoe*; Hawthorne's *The House of the Seven Gables*; Irving's *Sketch Book*; Ruskin's *Sesame and Lilies*; Lowell's *The Vision of Sir Launfal*; Longfellow's *Courtship of Miles Standish*.

In addition to the above a thorough study of each of the works named below is required. The examination will be upon subject matter, form and structure.

Shakespeare's *Macbeth*; Milton's *L'Allegro*, *Il Penseroso* and *Comus*; or Tennyson's *Idylls of the King*; Burke's Speech on Conciliation with America, or Washington's Farewell Address and Webster's *Bunker Hill Oration*; Macaulay's *Life of Johnson*, or Carlyle's *Essay on Burns*.

**FOREIGN LANGUAGES.** 4 units. Latin grammar and composition; Cæsar, four books of the Gallic War; Cicero, six orations; Virgil, six books of the Aeneid, or equivalents; or four units from not more than three of the following: Latin, Greek, German, French, Spanish.

**MATHEMATICS.** 2 units. Elementary Algebra, including fundamental operations, factoring, fractions, ratio, proportion, radicals, quadratics; Plane Geometry, including the straight line, angle, circle, proportion, similarity, and areas.

**SCIENCE.** 1 unit. Biology, Botany, Physiology, Zoology, Physical Geography, Physics or Chemistry. Any one may be offered.

**ELECTIVE.** 5 units in addition to the above subjects. Candidates may substitute one unit of science and one unit of advanced mathematics for two units of foreign language. Candidates for the degree in Ceramic Engineering should offer Solid Geometry and Intermediate Algebra.

### Summary

English.....	3 units
Mathematics.....	2 units
Foreign Languages.....	4 units
Science.....	1 unit
Elective.....	5 units

Admission is gained either on certificate or on examination, as follows:

### Admission on Certificate

**REGENTS' CREDENTIALS.** The credentials of the University of the State of New York are accepted instead of an examination in the subjects required for admission, so far as they cover these requirements. (For description of subjects, see *Entrance Requirements*.)

**PRINCIPAL'S CERTIFICATE.** Certificates are also received from principals of preparatory or high schools outside of New York State, provided such schools are known to the faculty for thoroughness of instruction. Such certificate must

specify, in connection with each subject, the extent to which it has been pursued, by giving the text-book used, the method of instruction, the amount of time given to it, the date of the final examination, the degree of the applicant's proficiency, and must clearly show that the student has met the requirements in every detail. The school furnishes blank forms for such certificates upon application of principals of approved schools. Principals of preparatory schools who desire to have their students admitted on certificate are invited to correspond with the director.

### **Admission on Examination**

Candidates who fail to present satisfactory certificates must pass a written examination in the required subjects.

For the convenience of students not having such certificates, entrance examinations are held at Alfred on the day preceding registration day (Thursday, September 24, 1918).

### **Conditioned Students**

No student can enter the freshman class conditioned in more than one unit. This condition must be removed within one year.

### **Admission to Advanced Standing**

Students from other schools, having a course equivalent to that of the New York State School, may enter at the point from which they take dismissal, upon presentation of satisfactory certificates of standing and character, including an honorable dismissal.

### **Senior Thesis**

There is required of each candidate for a degree a thesis, for which a credit of two hours in each semester of the Senior year is given. The title of the thesis must be chosen in the field of Ceramics not later than November 1, and must be approved by the director. The thesis shall embody the results

of actual independent research, and must be submitted for approval not later than May 1. A typewritten copy must be deposited with the director.\*

### Graduation

While no student will be permitted to graduate with a smaller credit than one hundred and ninety-eight term hours, four full years of resident work will be required in either course. Upon students who satisfactorily complete the course in Ceramic Engineering, Alfred University will confer the degree of Bachelor of Science in Ceramic Engineering, and upon students who satisfactorily complete the course in Applied Art the degree of Bachelor of Science in Applied Art.

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\* Any student electing to work in the summer time at an approved manufacturing plant may be excused from a thesis and will receive due credit at the discretion of the Director.

# COURSES OF STUDIES

## Course in Ceramic Engineering

### First Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Algebra, Trig..... 5	Analytical Geom.... 5	Analytical Geom... 5
Chemistry 1..... 3	Chemistry 1..... 3	Chemistry 1..... 3
German or French.. 3	German or French.. 3	German or French.. 3
English 1..... 3	English 1..... 3	English 1..... 3
Ceramics 1..... 1	Ceramics 1..... 1	Ceramics 1..... 1
Physical Training.. 1	Physical Training... 1	Physical Training.. 1
Sociology..... 1	Ethics ..... 1	Ethics..... 1
17	17	17

### Second Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Calculus..... 3	Calculus..... 3	Calculus ..... 3
Physics 1a, 1b.... 5	Physics 1..... 5	Physics 1..... 5
Chemistry 2..... 3	Chemistry 2..... 3	Chemistry 2..... 3
German or French.. 2	German or French.. 2	German or French.. 2
Ceramics 2..... 3	Ceramics 2..... 3	Ceramics 2..... 3
Physical Training.. 1	Physical Training... 1	Physical Training.. 1
17	17	17

### Third Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Mechanics and App.	Mechanics and App.	Mechanics and App.
Physics .....	Physics .....	Physics .....
Chemistry 3..... 3	Chemistry 4..... 3	Chemistry 4..... 3
Chemistry 6..... 3	Chemistry 6..... 3	Chemistry 6..... 3
Ceramics 3..... 3	Ceramics 3..... 3	Ceramics 3..... 3
Geology 1..... 2	Geology 3..... 2	Geology 3..... 2
Drafting..... 2	Drafting ..... 2	Drafting ..... 2
16	16	16

### Fourth Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Surveying..... 2	Surveying..... 2	Surveying..... 2
Ceramics 4..... 2	Ceramics 4..... 2	Ceramics 4..... 2
Ceramics 6..... 5	Ceramics 5..... 5	Chemistry 5..... 5
Thesis..... 2	Thesis..... 2	Thesis..... 2
Ceramic Design.... 2	Drafting ..... 2	Drafting ..... 2
Elective..... 3	Elective ..... 2	Elective..... 3
16	16	16

## Course in Applied Art

### First Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Drawing 1, Studio Practice..... 2	Drawing 1, Studio Practice..... 2	Drawing 1, Studio Practice..... 2
Modeling 1, Studio Practice..... 1	Modeling 1, Studio Practice..... 1	Modeling 1, Studio Practice..... 1
Design 1, Lecture and Studio..... 2	Design 1, Lecture and Studio..... 2	Design 1, Lecture and Studio..... 2
Ceramics 1, Lecture. 1	Ceramics 1, Lecture. 1	Ceramics 1, Lecture. 1
English 1, Eng. Composition and Rhetoric..... 3	English 1, Eng. Composition and Rhetoric..... 3	English 1, Eng. Composition and Rhetoric..... 3
Modern Language.. 3	Modern Language.. 3	Modern Language.. 3
Chemistry 1..... 3	Chemistry 1..... 3	Chemistry 1..... 3
Physical Training.. 1	Physical Training.. 1	Physical Training.. 1
Ethics 1..... 1	Ethics 1..... 1	Ethics..... 1
17	17	17

### Second Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Drawing 2, Studio Practice .. 2	Drawing 2, Studio Practice..... 2	Drawing 2, Studio Practice..... 2
Modeling 2, Studio Practice .. 2	Modeling 2, Studio Practice..... 2	Modeling 2, Studio Practice..... 2
Design 2, Lecture and Studio .. 2	Design 2, Lecture and Studio..... 2	Design 2, Lecture and Studio..... 2
Ceramics 2, Lecture and Laboratory.. 3	Ceramics 2, Lecture and Laboratory.. 3	Ceramics 2, Lecture and Laboratory.. 3
English 8..... 2	English 8..... 2	English 8..... 2
Modern Language.. 3	Modern Language.. 3	Modern Language.. 3
Physical Training.. 1	Physical Training.. 1	Physical Training.. 1
Artistic Anatomy or Drafting .. 2	Artistic Anatomy or Drafting .. 2	Artistic Anatomy or Drafting .. 2
17	17	17

### Third Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Drawing 3, Studio Practice..... 3	Drawing 3, Studio Practice..... 3	Drawing 3, Studio Practice..... 3
Modeling 3, Studio Practice..... 2	Modeling 3, Studio Practice..... 2	Modeling 3, Studio Practice..... 2
Design 3, Lecture and Studio .. 2	Design 3, Lecture and Studio .. 2	Design 3, Lecture and Studio .. 2
Ceramic Craft 2, Lecture and Studio 2	Ceramic Craft 2, Lecture and Studio 2	Ceramic Craft 2, Lecture and Studio 2
Elective..... 3	Elective..... 3	Elective..... 3
History of Art, Lecture..... 2	History of Art, Lecture..... 2	History of Art, Lecture..... 2
Ceramics 7, Laboratory..... 2	Ceramics 7, Laboratory .. 2	Ceramics 7, Laboratory .. 2
16	16	16

## Course in Applied Art

### Fourth Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Drawing 4, Studio Practice..... 3	Drawing 4, Studio Practice..... 3	Drawing 4, Studio Practice..... 3
Modeling 4, Studio Practice..... 2	Modeling 4, Studio Practice..... 2	Modeling 4, Studio Practice..... 2
Design 4, Lecture and Studio..... 2	Design 4, Lecture and Studio..... 2	Design 4, Lecture and Studio..... 2
Composition, Lecture and Studio.. 2	Composition, Lecture and Studio.. 2	Composition, Lecture and Studio.. 2
Elective..... 3	Elective..... 3	Elective..... 3
Ceramics 8, Laboratory..... 2	Ceramics 8, Laboratory..... 2	Ceramics 8, Laboratory..... 2
Ceramics 9, Thesis.. 2	Ceramics 9, Thesis.. 2	Ceramics 9, Thesis.. 2
<hr/> 16	<hr/> 16	<hr/> 16

## SHORT COURSES

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Short courses of two years each are offered and are intended to meet the needs of persons who are unable to qualify for a course leading to a degree. Applicants must be at least 18 years of age and must give evidence of ability to receive instruction.

While these courses are carefully planned so as to make the best possible use of the time available, it is hoped that no student will rest content with a short course if the requirements for entrance to a four years' course can possibly be met. No subject for which credit is given in a short course can be applied to remove entrance conditions to a full course.

### Short Course in Clay-Working

#### First Year

	Term Hours
Mathematics.....	3
Chemistry 1, General Chemistry, Lecture and Laboratory.....	3
English 1.....	3
Ceramics 1.....	1
Ceramics 2.....	3
Industrial Mechanics 1.....	1
Industrial Mechanics 5.....	1
Physical Training 1.....	1
Ethics 1.....	1
	<hr/> 17

#### Second Year

Chemistry 2, Qualitative and Quantitative Analysis.....	3
Physics.....	5
Ceramics 3.....	3
Ceramics 4.....	2
Industrial Mechanics 2.....	1½
Industrial Mechanics 4.....	1½
Industrial Mechanics 8.....	1½
	<hr/> 17½

For particulars of the courses see the description of the courses in Ceramic Engineering.

## Short Course in Normal Art

First Year	Studio Hours
Drawing 1, Studio Practice (same as in Applied Arts) . . . . .	6
Design 1, Lecture and Studio (same as in Applied Arts) . . . . .	6
Modeling 1, Studio Practice . . . . .	6
Public School Drawing 1, Studio Practice . . . . .	6
Mechanical Drawing, Studio Practice . . . . .	6
	30
Second Year	
Drawing 2, Studio Practice (same as in Applied Arts) . . . . .	9
Public School Drawing 2, Studio Practice . . . . .	6
Normal Training, Lecture and Studio . . . . .	9
History of Art, Lecture and Recitations . . . . .	6
	30

For courses in Ethics, English, Modern Languages, Physics, Mathematics, Geology and Industrial Mechanics, see College Catalogue of Alfred University.

# DEPARTMENTS OF INSTRUCTION

## Description of Courses

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### CERAMICS

Professor Binns

Professor Shaw

1. Lectures on the origin, properties and uses of clays and other ceramic materials. Types of ware and methods of manufacture. Elementary glaze composition.

Laboratory practice in the operations involved in manufacture. The preparation and use of forms, molds and dies. Making saggers, jiggering, pressing and casting pottery. Making brick and tile. The general use of the machine equipment.

First year. One hour lecture and two hours laboratory.  
*One hour.*

Professor Binns.

2. Lectures on the occurrence, classification and identification of clays. The manufacture of all classes of ceramic products. The theory and practice of drying and burning. The compounding of clay mixtures, and the production and use of glazes and colors. The glaze formula.

Laboratory practice in clay testing. The measurement of the physical properties of clays and the compounding of bodies and glazes. Kiln firing.

Second year. Two hours lecture and four hours laboratory.  
*Three hours.*

Professor Binns.

3. Lectures on the winning and preparation of clays. The technology of the ceramic industries. The mineralogical,

chemical and physical changes which take place in clays, bodies and glazes during their preparation, drying and burning. The theory and practice of pyrometry.

Laboratory practice in the production and application of slips, engobes, enamels, glazes and colors. The production, decoration and firing of finished wares.

Third year. Two hours lecture and four hours laboratory.  
*Three hours.*

Professor Shaw.

4. Recitations on the calculations involved in the mixing and blending of ceramic materials in bodies, glazes and colors. The use of analyses. The designing of series for glaze study. Chemical and physical problems in gas volume relations, heat, combustion and the calorific value of fuels.

Fourth year. Two hours recitation. *Two hours.*

Professor Shaw.

5. Lectures on the raw materials, preparation, compounding and manufacture of the various types of glass and enamel. Laboratory practice in the production and testing of various types of glass and enamel, special emphasis being laid on the refractories used in these industries.

Fourth year. Two hours lecture and twelve hours laboratory.  
*Five hours.*

Professor Shaw.

6. Lectures on the raw materials, preparation, compounding and manufacture of refractories, limes, plasters, natural and Portland cements. The theory of hydraulicity and the reactions involved in manufacture. Methods of testing.

Laboratory practice in the production and testing of refractories, lime, plaster and cement and the study of their physical properties. The use of the electric furnace in the study of dehydration, lag curves, melting points, eutectics and the viscosity of fused minerals and mineral mixtures.

Fourth year. Two hours lecture and twelve hours laboratory. *Five hours.*

Professor Shaw.

7. Laboratory practice for art students. The production of form by molding. The preparation of glazes for decorative pottery.

Third year. Four hours laboratory. *One hour.*

Professor Binns.

8. Laboratory practice in continuation of course 8. The preparation and use of underglaze colors. Glazes for colors. Colored glazes. The use of the potter's wheel.

Fourth year. Four hours laboratory. *One hour.*

Professor Binns.

9. Thesis.

Fourth year. Six hours laboratory. *Two hours.*

Professor Binns, Professor Shaw.

## **CHEMISTRY**

Professor Bole

CHEMISTRY 1. A thorough course in the theory and principles of the science of chemistry, covering Alexander Smith's College Chemistry. It is supposed that students entering this course shall have had high school physics, and preferably high school chemistry. Lecture and recitations, *two hours*, laboratory *one hour*.

2. QUALITATIVE ANALYSIS. The detailed separation of the metals, non-metals and acid radicals. The student is required to apply the theory learned in course 1 and to explain the reason for each reaction. The ionic theory, solubility product, law of concentration, hydrolysis, amphoteric hydroxides, etc., are studied and application made in the separations. A laboratory course consisting of four hours of laboratory work a week throughout the year, with one hour lecture. Text-book, Stieglitz. Prerequisite, course 1 or its equivalent. *Three hours.*

3. QUANTITATIVE ANALYSIS. A laboratory course of four hours with a weekly lecture throughout the year. The work embraces the principal methods of gravimetric, volumetric and

electro-chemical analysis, and the use of the reference works and the chemical journals. This course gives quantitative application of the laws which are studied qualitatively in course 2. Prerequisites, courses 1 and 2. *Three hours.*

4. TECHNICAL ANALYSIS. Lectures and laboratory work. The analysis of silicate and carbonate rocks is carried out in detail. The student is given the opportunity to compare different methods of analysis rather than to follow any specified method. Prerequisites, courses 1, 2 and 3. *Three hours. II and III.*

5. GAS AND FUEL ANALYSIS. One hour lecture and four hours laboratory. The complete analysis of flue, illuminating and natural gases is carried out in the laboratory. The study of the various fuels is taken up and different samples are analyzed by the student. The student is taught to use the Orsat and Hempel's apparatus and the Parr calorimeter. Prerequisites, courses 1, 2, 3, 4. *Five hours. III.*

6. PHYSICAL CHEMISTRY. Introduction to the concepts of physical chemistry. The first semester is taken up with a detailed study of the quantitative laws governing gases, liquids, solids, and substances in solution. During the second term a study of the phase-rule and electro-chemistry is taken up and a detailed study of the laws of chemical equilibrium and applications of the same is carried out. Prerequisites, courses 1 and 2. *Two hours.*

## APPLIED ART

Miss Binns

Miss Fosdick

### Drawing

1. Freehand drawing; perspective. Charcoal drawing from the antique. Detail of figure and full figure from case.

First year. Six hours studio. *Two hours.*

2. Drawing from the antique continued. Water color from still-life and flowers. Composition and value in their relation to design.

Second year. Six hours studio. *Two hours.*

3. Water color painting from still life. Drawing and painting from life. Pastel, pen and ink, and pencil rendering.

Third year. Six hours studio. *Three hours.*

4. Drawing and painting from life.

Fourth year. Six hours studio. *Three hours.*

### Modeling

1. Elementary modeling from the cast. Time sketches of ornament. Simple ornament from original designs. Plaster-casting in relief.

Pottery building. Decoration of pottery by incising, inlaying, slip painting, piercing, etc.

First year. Six hours studio. *One hour.*

2. Modeling from the antique. Time sketches of ornament. Plaster casting in the round. Modeling for terra cotta from original designs.

Pottery building and decoration of pottery.

Second year. Six hours studio. *Two hours.*

3. Modeling from the antique and from nature. Modeling for terra cotta from original designs. Decoration of wheel-made pottery by modeling, by underglaze, inlaid glazes.

Third year. Six hours studio. *Two hours.*

4. Modeling from the figure and from animals. Application to modeled decoration. Advanced work in the modeling and decorating of pottery.

Fourth year. Six hours studio. *Two hours.*

### Design

1. Designing of geometric ornament. The study of historic ornament. The designing of simple ornament in historic styles. Application of ornament to surface patterns, tiles, pottery, mosaics, etc.

First year. One hour lecture, four hours studio. *Two hours.*

2. Application of ornament continued. Illuminating book decoration, lettering, textiles, etc. Development of color.

Second year. One hour lecture, five hours studio. *Two hours.*

3. Design as applied to Ceramics. Modeled designs. Wall-paper. Illuminating, "stained" glass, etc.

Third year. One hour lecture, five hours studio. *Two hours.*

4. Application of ornament continued. Professional rendering.

Fourth year. One hour lecture, five hours studio. *Two hours.*

### **Ceramic Craft**

Study and production of ceramic wares. Relation of use and beauty. Hand and machine work. Professional rendering.

Third year. One hour lecture and three hours studio. *Two hours.*

### **Artistic Anatomy**

Lectures dealing with the bones and muscles of the body, illustrated with analytical drawings. Construction of anatomical figure from memory.

Third year. One hour lecture, three hours studio. *Two hours.*

### **Composition**

Study of the laws of composition as related to sculpture. The use of the figure in decorative modeling for terra cotta. Designing and making of such objects as flower holders, book ends, etc.

Fourth year. Four hours studio. *Two hours.*

### **History of Art**

Lectures and recitations illustrated with photographs and slides, on the history of art and the appreciation of beauty. The beginnings of art. Egyptian, Greek and Roman art. The arts and crafts of the Middle Ages. The painting and sculpture of the Renaissance. Modern art. Reinach's

“History of Art Throughout the Ages,” is used as a text-book with supplementary reading and keeping of note-books.

Third year. Two hours recitations. *Two hours.*

## **NORMAL ART**

Miss Binns

Miss Fosdick

### **Drawing**

1. Same as Drawing 1 in Applied Arts Course.

First year. Six hours studio.

2. Same as Drawing 2 in Applied Arts Course.

Second year. Nine hours studio.

### **Design**

Same as Design 1 in Applied Arts Course.

First year. One hour lecture, four hours studio.

### **Modeling**

Elementary modeling from the cast. Modeling from memory of animals, etc. Story illustration. Sand table work. Simple decorated tiles, pottery, etc.

First year. Six hours studio.

### **Public School Drawing**

1. Exercises in blackboard drawing. Pencil drawing from nature. Time sketches. Pose drawing. Exercises in teaching.

First year. Six hours studio.

2. Exercises in blackboard drawing. Pencil drawing of animals, plants, etc. Illustrative drawing. Memory sketching.

Second year. Six hours studio.

### **Mechanical Drawing**

Geometric problems. Use of instruments. Reading of working drawings. Working drawings from freehand sketches. Perspective sketching from plan. Drawing to scale.

First year. Six hours studio.

### **Normal Training**

Lectures on the theory of teaching, methods of criticism, methods of supervision. Observation of work in local schools. Working out of art problems for the grades and High School. Keeping of note-books and portfolios of work. Exercises in teaching.

Second year. One hour lecture, six hours studio.

### **History of Art**

Same as in Applied Arts Course.

Second year. Two hours lecture and recitations.

# DEPARTMENT OF INVESTIGATION AND RESEARCH

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## Clay Testing

Professor Binns

The State School of Ceramics is fitted, and the experts in charge are qualified, for the professional examination and testing of clays for economic purposes. Such clays may be classified under the following heads:

- (a) Kaolin, white burning residual clay.
- (b) Kaolin, white burning, washed for market, used in the manufacture of pottery, porcelain and paper.
- (c) Ball clay, white or cream burning, sedimentary clay of high plasticity, used in pottery manufacture.
- (d) Stone ware clay, gray or cream burning, more or less sandy in character, used in stone ware manufacture.
- (e) Fire clay, buff or white burning, refractory, used for manufacture of fire brick.
- (f) Brick clay including colored clays and shales, used for the manufacture of brick and tile of various qualities and descriptions.

For each of the above classes special tests are necessary, and the charges made are proportionate to the work required.

A report upon each sample will be furnished and must be understood to refer only to the samples submitted unless the experts are instructed to examine the deposit and prepare their own samples, in which case special charges will be made. The report includes physical tests, and chemical analysis where necessary.

Advice as to washing or other preparation of the clay is also given, together with an opinion as to the industry to which the material may be applied.

## Industrial Problems

Professor Binns

Professor Shaw

The problems incidental to the manufacture of clay wares are regularly investigated at the school. Manufacturers are invited to present questions for study. Persons resident within the state are entitled to reasonable services without charge.







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UNIVERSITY PUBLICATIONS

EIGHTY-FOURTH YEAR—NO. 7A.

1919/20

# The New York State School of Clay-Working and Ceramics



ALFRED, NEW YORK

1919-1920

PUBLISHED BI-MONTHLY BY ALFRED UNIVERSITY  
DECEMBER, 1919

Entered January 25, 1902, as second-class matter  
Post Office, Alfred, N. Y.

Under Act of Congress of July 16, 1894

Acceptance for mailing at special rate of postage  
provided for in Section 1103, Act of  
October 3, 1917, Authorized on July 3, 1918



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## **BOARD OF MANAGERS**

(Appointed annually by the Trustees of Alfred University)

BOOTHE C. DAVIS, President

JOHN J. MERRILL

WILLIAM R. CLARKE

V. A. BAGGS

D. S. BURDICK

# Calendar

## First Term 1919-1920

		1919
Entrance Examination	Tuesday	Sept. 23
Registration	Wednesday	Sept. 24
Instruction begins	Thursday	Sept. 25
Thanksgiving Recess begins	Wednesday noon	Nov. 26

### THANKSGIVING RECESS

Instruction resumed	Monday noon	Dec. 1
Founders' Day	Friday	Dec. 5
Term Examinations begin	Monday	Dec. 15
Term ends	Wednesday evening	Dec. 17

### HOLIDAY RECESS

## Second Term

Instruction resumed	Wednesday morning	Dec. 31
		1920
Term Examinations begin	Monday	Mar. 15
Term ends	Wednesday evening	Mar. 17

### SPRING RECESS

## Third Term

Instruction begins	Wednesday	Mar. 24
Memorial Day	Sunday	May 30
Final Examinations begin	Monday	June 7
Final Examinations end	Friday	June 11

### EIGHTY-FOURTH ANNIVERSARY

Annual Sermon before Christian Associations	Saturday morning	June 12
Commencement Play	Saturday evening	June 12
Baccalaureate Sermon	Sunday evening	June 13
Alumni Association, Directors' meeting	Monday afternoon	June 14
Annual Concert	Monday evening	June 14
Class breakfasts and reunions	Tuesday morning	June 15
Annual meeting of Trustees	Tuesday morning	June 15
Annual meeting of Corporation	Tuesday afternoon	June 15
Class-day Exercises	Tuesday afternoon	June 15
Alumni Banquet	Tuesday evening	June 15
Commencement Exercises	Wednesday morning	June 16
Alumni Association, Public Session	Wednesday afternoon	June 16
President's Reception	Wednesday evening	June 16

### SUMMER VACATION

## Summer Term 1920

Summer Term begins	Tuesday	July 6
Summer Term ends	Wednesday	Aug. 18

## OFFICERS OF INSTRUCTION

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BOOTHE COLWELL DAVIS, Ph.D., D.D., LL.D., President  
Professor of Ethics.

CHARLES F. BINNS, Sc.M., Director,  
Professor of Ceramic Technology.

JOSEPH B. SHAW, Cer. Eng.,  
Professor of Ceramic Engineering.

GEORGE A. BOLE, A.M.,  
Professor of Chemistry.

M. ELSIE BINNS,  
Professor of Modeling and Pottery.

MARION L. FOSDICK,  
Professor of Drawing and Design.

## OTHER EMPLOYEES

---

CURTIS F. RANDOLPH,  
Treasurer and Accountant.

RUTH M. CARPENTER, Ph. B.,  
Stenographer.

EVA B. MIDDAUGH,  
Matron.

TOM M. PLACE,  
Foreman of Workshop.

A. L. WHITFORD,  
Janitor and Machinist.

## NEW YORK STATE SCHOOL OF CLAY- WORKING AND CERAMICS

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In the field of applied science and commercial engineering the subject of clay-working is becoming daily more important. To the architect and builder clay offers the most satisfactory fireproof material, to the housewife pottery is indispensable and to the artist clay and clay-wares afford at once a facile means of expression and a prominent feature of home decoration.

The problems which confront the clay-worker are unique. He must learn to win his material economically from the earth, to shape his wares with due regard to both utility and art, to glaze or otherwise finish them in a satisfactory manner and to burn the whole successfully upon a large scale. His education must therefore be comprehensive and complete. He must, in a word, be a specialist, and to this end the New York State School was established.

Chapter 383, Laws of New York State, 1900, provided for the construction and maintenance of the school, and in order to secure the necessary facilities for collateral branches of study Alfred University was chosen as the location.

For this work the University offers great advantages. Laboratories of chemistry and physics, libraries, museums of geology and natural history, workshops for manual training, and all the departments of general culture are available, so that the many and varied requirements of a liberal education are fully met.

The State of New York contains vast deposits of clays and shales at present lying dormant. It also contains large numbers of young men and women who are seeking profitable employment. The work of the school is to bring these together.

Neither the science nor the art is neglected. Attention is given to the improvement of methods of manufacture and the reduction of cost so that the resources of the State may be fully developed and that within its borders may be manufactured the clay-wares, both coarse and fine, necessary for its own consumption.

### Building and Equipment

The building of the New York State School of Clay-Working and Ceramics has been especially designed for the purposes of the school, and is located on land which was deeded by Alfred University to the people of the State of New York. It is built of red brick and terra cotta with gray trimmings and roofed with brown tile. The main building has a floor space of about thirteen thousand square feet, and a frontage of seventy-five feet.

To this has been added a fireproof wing measuring about 36 by 57 feet and three stories in height.

In the main basement are located a full battery of kilns, the heavy machinery for the manufacture of brick, tile, hollow blocks and roofing tile, the slip-making plant, cylinders for glaze preparation, and a workshop fitted with modern appliances for pottery and porcelain manufacture. There are also rooms for mold making and drying.

In the sub-basement are located the heating plant and fuel storage and a damp cellar.

On the principal floor are the executive offices, the technical laboratory, a lecture room, a room for furnaces, the chemical laboratory and balance room and a special kiln room for the Art department. On the second floor is the department of Design and Applied Art and on the third floor a lecture room and a studio for advanced work.

The motive power is supplied by two Otto gas engines, of 36 and 8 horse power, respectively.

The school maintains a complete technical library for reference and for the encouragement of independent reading and research. It also encourages membership and activity in the

New York State Students' Branch of the American Ceramic Society, which was chartered at Alfred in 1915, and in the Ceramic Guild organized by the students in Art.

### **Co-operation with New York State Manufacturers**

The school desires to co-operate to the fullest extent possible with the Ceramic interests of the State and to that end a Short Course in Ceramic Engineering is given every year, consisting of lectures by eminent ceramists brought to the school for the course which lasts three or four days.

### **Courses Offered**

The courses of study which lead to a degree extend over a period of four years and embrace the science, technology and art special to clay-working. The ceramic work is elective as to the particular branch of clay-working to be followed.

The course in Ceramic Engineering is designed to qualify men to occupy positions as superintendents, scientific experts and ceramic chemists.

The course in Applied Art is intended to fit the student for the designing and producing of artistic pottery.

### **Benefits of the School**

The demand for trained clay-workers has grown to considerable proportions during the last few years. Capital is becoming more and more interested in the development of clay lands and shale banks; nor is there any likelihood that this interest will decrease.

On the other hand the number of men who have studied in schools is very small compared with the openings to be filled. Hitherto, no student who has passed through the school successfully has remained unemployed, and the director is continually in receipt of applications for persons qualified to fill responsible positions. Every effort is made by the faculty to place the students in communication with manufacturers desiring to offer them employment.

The student successfully pursuing the technical course will be able, presuming that his personal capacity is good, to take up the practical work of manufacturing clay wares. He will have had experience with every description of clay, and with the minerals and oxides used in preparing bodies and glazes. He will have acquired a knowledge of machinery and kilns which he will find of the greatest value; in short, he will be a trained man as regards the problems of clay-working.

Students who conscientiously pursue the course in Applied Art will be able to design and make artistic pottery, preparing their own clays and compounding their own glazes, if necessary.

### Physical Training

The aim of the work in physical training is to bring the whole body to its normal condition, to acquire ease and precision in movement, and to develop the health and strength of the student.

**GYMNASIUM.** The gymnasium floor is in Alumni Hall. It is equipped with chest weights, dumb bells, wands, Indian clubs, horizontal and parallel bars, and mats. Dressing rooms with individual lockers, are provided. The gymnasium is in charge of the physical director. The alumni and other friends of the university have started a fund known as the "Davis Gymnasium Fund" to provide a more commodious gymnasium.

**ATHLETIC FIELD.** The athletic field embraces over three acres of level land. All local intercollegiate contests in football, baseball, and track athletics are held on this field. The field affords a running track (one-sixth of a mile). Appropriate apparatus for field sports is provided.

**OUTDOOR SPORTS**, including tennis, are in the immediate charge of the athletic association, which has a football team playing under intercollegiate rules, a baseball nine, and a basketball team. For tennis there are excellent courts and an annual tournament is maintained. Athletics, however, are not carried to extremes. The committee on athletics from the faculty, and the graduate manager exercise general super-

vision, for it is the purpose of the university to give due attention to the physical welfare of its students, and at the same time keep the physical in proper relation to the intellectual and moral development.

EXPENSES		
Matriculation.....		\$5 00
Graduation.....		10 00
COLLEGE FEES <i>per term</i>		
Reading Room.....		1 00
Athletics.....		3 00
College Paper (Fiat Lux).....		50
EXTRA FEES <i>per term</i> , for the use of instruments, apparatus and laboratory materials:		
Chemistry 1, 8.....		4 00
Chemistry 2, 3, 4, 6, 7.....		5 00
Chemistry 8.....		8 00
Gymnasium (Freshmen, Sophomores).....		1 00
Machine Shop.....		3 00
Physics 1.....		1 50
Physics 4.....		2 00
Surveying.....		3 00
Woodshop.....		3 00
MISCELLANEOUS FEES AND DEPOSITS:		
Chemistry Breakage Deposit, Chemistry 1 and 8.....		2 00
Chemistry Breakage Deposit, Chemistry 2, 3, 4, 5, 6, 7.....		5 00
Room Deposit (All students in College dormitories).....		5 00
Special Examinations, each.....		1 00
Late Registration (All students not registering on Registration days).....		2 00

Students who register for more than seventeen hours will be charged three dollars for each additional hour.

Students taking fewer than eight hours will be charged three dollars for each hour.

Term bills for college fees will be issued on or before the fifteenth of October, January and April, and must be paid at the office of the Treasurer before the first of the following month. Failure to comply with this regulation renders the student liable to suspension.

No tuition is charged to students who are prepared to enter the regular courses, but no student is entitled to free tuition in any college class not forming part of a course in the School of Ceramics nor are students registered in the college entitled to free tuition in the School of Ceramics in respect of any subject for which college credit is given.

## Rooms and Board

Rooms and board for women can be had at Ladies Hall, as follows:

Rooms furnished, with heat and light, per year.....	\$40 00 to \$72 00
Board, per week (subject to increase).....	4 50

Rooms and board for men can be had at Burdick Hall, as follows:

Rooms furnished, with heat and light, per year.....	\$48 00 to \$64 00
Board per week, club plan, about.....	3 75

Rooms and board including fuel can be obtained in private families from \$5.00 to \$6.00 per week. Board in clubs organized and managed by the students themselves varies from \$3.50 to \$5.00 per week according to the means and inclinations of the students.

## Estimated Annual Expenses

Excluding cost of clothing and travel, one can go through a college year by close economy upon \$250.00; and by exercising care, upon \$350.00. An allowance of \$400.00 is comfortable and \$450.00 is liberal.

Board, \$3.50 to \$5.00 per week.....	\$126 00 to \$180 00
Rooms.....	40 00 to 72 00
Laundry .....	12 00 to 18 00
Books.....	10 00 to 25 00
Class dues, etc.....	2 00 to 10 00
Fees, incidentals and extras.....	60 00 to 90 00
 Total for year.....	 \$250 00 to \$400 00

## Self-Support

Many of the graduates have been persons of very limited means who worked their way through college. While the school cannot guarantee work to all applicants, enterprising students can usually find employment in the town with satisfactory compensation for all the time they can profitably spare from their studies. Some earn enough to meet the greater part of their expenses. Students should distinctly understand that when they attempt entire self-support they should lengthen their term of study.

## College Year

The college year consists of three terms of about twelve weeks each. There is a vacation at the holidays of about two weeks; a week's recess near Easter and a summer vacation of about fourteen weeks.

## Class Exercises

The class period is one hour in length; in laboratory work, however, the class period is two hours. There are no classes on Saturday or Sunday. Each student is expected to have at least sixteen hours per week, and may not register for more than seventeen with the following exceptions: (1) If a student has no standing less than B in the preceding term he may register for eighteen hours. (2) Students who have a grade of A in more than half their work may register for more than eighteen hours upon the approval of the Faculty.

Freshmen who fail to pass in at least half of their work in a term are not eligible for registration the next term. Sophomores must pass at least two-thirds of their work, and Juniors, Seniors and Specials at least three-quarters to make them eligible for registration the next term.

## Unit of Measure or Credit

One class period per week for one term, is taken as the unit of credit, and is called a term hour. In each course one hundred and ninety-eight term hours are required.

The work of students in each subject is graded as A, excellent; B, good; C, fair; D, poor; E, conditioned failure; F, failure.

## Absences and Excuses

It is expected that no student will be absent from any class period except in case of necessity. Reasons for absence from classes are submitted to a committee of the faculty known as the Committee on Absences. All excuses are granted with the understanding that the work missed will be made up to the satisfaction of the instructor. Unexcused absences equal

to the number of recitation periods per week will lower the grade one letter, and in excess of twice that number will lower the grade to F (failure). Two tardinesses count as one absence.

### **Examinations**

Final examinations are held at the close of each term in addition to occasional written tests during the term. Fees will be charged for all examinations taken by those not regular members of classes, or at other times than those appointed for the class examinations.

## ADMISSION

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Candidates for admission to the freshman class must be at least sixteen years of age and must present certificates of good moral character. The particular requirements for entrance are explained below. Preparatory work is estimated in "units." The "unit" represents a course of five recitations weekly throughout an academic year of the preparatory school. Fifteen "units" or an equivalent must be offered.

### Entrance Requirements

**ENGLISH.** 3 units. The candidate must be familiar with elementary rhetoric, both as a science and an art, and must be proficient in spelling, punctuation, idiom and division into paragraphs. Preparation must include the work in English prescribed by the various college associations.

Each student must be able to pass an examination upon ten books selected from the list prescribed by the college entrance associations. The following ten are recommended; Shakespeare's *Julius Cæsar*, and *The Merchant of Venice*; *The Sir Roger de Coverly Papers*; Goldsmith's *The Deserted Village*; Scott's *Ivanhoe*; Hawthorne's *The House of the Seven Gables*; Irving's *Sketch Book*; Ruskin's *Sesame and Lilies*; Lowell's *The Vision of Sir Launfal*; Longfellow's *Courtship of Miles Standish*.

In addition to the above a thorough study of each of the works named below is required. The examination will be upon subject matter, form and structure.

Shakespeare's *Macbeth*; Milton's *L'Allegro*, *Il Penseroso* and *Comus*; or Tennyson's *Idylls of the King*; Burke's *Speech on Conciliation with America*, or Washington's *Farewell Address* and Webster's *Bunker Hill Oration*; Macaulay's *Life of Johnson*, or Carlyle's *Essay on Burns*.

**FOREIGN LANGUAGES.** 4 units. Latin grammar and composition; Cæsar, four books of the Gallic War; Cicero, six orations; Virgil, six books of the Aeneid, or equivalents; or four units from not more than three of the following: Latin, Greek, German, French, Spanish.

**MATHEMATICS.** 2 units. Elementary Algebra, including fundamental operations, factoring, fractions, ratio, proportion, radicals, quadratics; Plane Geometry, including the straight line, angle, circle, proportion, similarity, and areas.

**SCIENCE.** 1 unit. Biology, Botany, Physiology, Zoology, Physical Geography, Physics or Chemistry. Any one may be offered.

**ELECTIVE.** 5 units in addition to the above subjects. Candidates may substitute one unit of science and one unit of advanced mathematics for two units of foreign language. Candidates for the degree in Ceramic Engineering should offer Solid Geometry and Intermediate Algebra.

### Summary

English.....	3 units
Mathematics.....	2 units
Foreign Languages.....	4 units
Science.....	1 unit
Elective.....	5 units

Admission is gained either on certificate or on examination, as follows:

### Admission on Certificate

**REGENTS' CREDENTIALS.** The credentials of the University of the State of New York are accepted instead of an examination in the subjects required for admission, so far as they cover these requirements. (For description of subjects, see *Entrance Requirements*.)

**PRINCIPAL'S CERTIFICATE.** Certificates are also received from principals of preparatory or high schools outside of New York State, provided such schools are known to the faculty for thoroughness of instruction. Such certificate must

specify, in connection with each subject, the extent to which it has been pursued, by giving the text-book used, the method of instruction, the amount of time given to it, the date of the final examination, the degree of the applicant's proficiency, and must clearly show that the student has met the requirements in every detail. The school furnishes blank forms for such certificates upon application of principals of approved schools. Principals of preparatory schools who desire to have their students admitted on certificate are invited to correspond with the director.

### **Admission on Examination**

Candidates who fail to present satisfactory certificates must pass a written examination in the required subjects.

For the convenience of students not having such certificates, entrance examinations are held at Alfred on the day preceding registration day (Tuesday, September 21, 1920).

### **Conditioned Students**

No student can enter the freshman class conditioned in more than one unit. This condition must be removed within one year.

### **Admission to Advanced Standing**

Students from other schools, having a course equivalent to that of the New York State School, may enter at the point from which they take dismissal, upon presentation of satisfactory certificates of standing and character, including an honorable dismissal.

### **Senior Thesis**

There is required of each candidate for a degree a thesis, for which a credit of two hours in each term of the Senior year is given. The title of the thesis must be chosen in the field of Ceramics not later than November 1, and must be approved by the director. The thesis shall embody the results

of actual independent research, and must be submitted for approval not later than May 1. A typewritten copy must be deposited with the director.\*

### Graduation

While no student will be permitted to graduate with a smaller credit than one hundred and ninety-eight term hours, four full years of resident work will be required in either course. Upon students who satisfactorily complete the course in Ceramic Engineering, Alfred University will confer the degree of Bachelor of Science in Ceramic Engineering, and upon students who satisfactorily complete the course in Applied Art the degree of Bachelor of Science in Applied Art.

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\* Any student electing to work in the summer time at an approved manufacturing plant may be excused from a thesis and will receive due credit at the discretion of the Director.

# COURSES OF STUDIES

## Course in Ceramic Engineering

### First Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Algebra..... 5	Solid Geom, Trig... 5	Analytical Geom... 5
Chemistry 1..... 3	Chemistry 1..... 3	Chemistry 1..... 3
German or French.. 3	German or French.. 3	German or French.. 3
English 1..... 3	English 1..... 3	English 1..... 3
Ceramics 1..... 1	Ceramics 1..... 1	Ceramics 1..... 1
Physical Training... 1	Physical Training... 1	Physical Training .. 1
Sociology..... 1	Ethics ..... 1	Ethics..... 1
17	17	17

### Second Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Calculus..... 3	Calculus..... 3	Calculus ..... 3
Physics 1a, 1b.... 5	Physics 1..... 5	Physics 1..... 5
Chemistry 2..... 5	Chemistry 2..... 4	German or French.. 2
German or French.. 2	German or French.. 2	Ceramics 2..... 6
Ceramics 2..... 1	Ceramics 2..... 2	Physical Training.. 1
Physical Training... 1	Physical Training... 1	
17	17	17

### Third Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Mechanics and App.	Mechanics and App.	Mechanics and App.
Physics ..... 3	Physics ..... 3	Physics ..... 3
Chemistry 3..... 3	Chemistry 4..... 3	Chemistry 4..... 3
Chemistry 6..... 3	Chemistry 6..... 3	Chemistry 6..... 3
Ceramics 3..... 3	Ceramics 3..... 3	Ceramics 3..... 3
Geology 1..... 2	Geology 3..... 2	Geology 3..... 2
Drafting..... 2	Drafting ..... 2	Drafting ..... 2
16	16	16

### Fourth Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Surveying..... 2	Surveying..... 2	Surveying..... 2
Ceramics 4..... 2	Ceramics 4..... 2	Ceramics 4..... 2
Ceramics 6..... 5	Ceramics 5..... 5	Chemistry 5..... 5
Thesis ..... 2	Thesis ..... 2	Thesis .....
Ceramic Design.... 2	Drafting ..... 2	Drafting ..... 2
Elective..... 3	Elective ..... 2	Elective..... 3
16	16	16

## Course in Applied Art

### First Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Drawing 1, Studio Practice..... 2	Drawing 1, Studio Practice..... 2	Drawing 1, Studio Practice..... 2
Modeling 1, Studio Practice..... 1	Modeling 1, Studio Practice..... 1	Modeling 1, Studio Practice..... 1
Design 1, Lecture and Studio..... 2	Design 1, Lecture and Studio..... 2	Design 1, Lecture and Studio..... 2
Ceramics 1, Lecture. 1	Ceramics 1. Lecture. 1	Ceramics 1, Lecture. 1
English 1, Eng. Composition and Rhetoric..... 3	English 1, Eng. Composition and Rhetoric..... 3	English 1, Eng. Composition and Rhetoric..... 3
Modern Language.. 3	Modern Language.. 3	Modern Language.. 3
Chemistry 1..... 3	Chemistry 1..... 3	Chemistry 1..... 3
Physical Training.. 1	Physical Training.. 1	Physical Training.. 1
Ethics 1..... 1	Ethics 1..... 1	Ethics..... 1
17	17	17

### Second Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Drawing 2, Studio Practice..... 2	Drawing 2, Studio Practice..... 2	Drawing 2, Studio Practice..... 2
Modeling 2, Studio Practice..... 2	Modeling 2, Studio Practice..... 2	Modeling 2, Studio Practice..... 2
Design 2, Lecture and Studio..... 2	Design 2, Lecture and Studio..... 2	Design 2, Lecture and Studio..... 2
Ceramics 2, Lecture and Laboratory.. 3	Ceramics 2, Lecture and Laboratory.. 3	Ceramics 2, Lecture and Laboratory.. 3
English 8..... 2	English 8..... 2	English 8..... 2
Modern Language.. 3	Modern Language.. 3	Modern Language.. 3
Physical Training.. 1	Physical Training.. 1	Physical Training.. 1
Artistic Anatomy or Drafting .. 2	Artistic Anatomy or Drafting .. 2	Artistic Anatomy or Drafting .. 2
17	17	17

### Third Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Drawing 3, Studio Practice..... 3	Drawing 3, Studio Practice..... 3	Drawing 3, Studio Practice..... 3
Modeling 3, Studio Practice..... 2	Modeling 3, Studio Practice..... 2	Modeling 3, Studio Practice..... 2
Design 3, Lecture and Studio..... 2	Design 3, Lecture and Studio..... 2	Design 3, Lecture and Studio..... 2
Ceramic Craft 2, Lecture and Studio 2	Ceramic Craft 2, Lecture and Studio 2	Ceramic Craft 2, Lecture and Studio 2
Elective..... 3	Elective..... 3	Elective..... 3
History of Art, Lecture..... 2	History of Art, Lecture..... 2	History of Art, Lecture..... 2
Ceramics 7, Labora- tory..... 2	Ceramics 7, Labora- tory .. 2	Ceramics 7, Labora- tory .. 2
16	16	16

## Course in Applied Art

### Fourth Year

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Drawing 4, Studio Practice..... 3	Drawing 4, Studio Practice..... 3	Drawing 4, Studio Practice..... 3
Modeling 4, Studio Practice..... 2	Modeling 4, Studio Practice..... 2	Modeling 4, Studio Practice..... 2
Design 4, Lecture and Studio..... 2	Design 4, Lecture and Studio..... 2	Design 4, Lecture and Studio..... 2
Composition, Lecture and Studio.. 2	Composition, Lecture and Studio.. 2	Composition, Lecture and Studio.. 2
Elective..... 3	Elective..... 3	Elective..... 3
Ceramics 8, Laboratory..... 2	Ceramics 8, Laboratory..... 2	Ceramics 8, Laboratory..... 2
Ceramics 9, Thesis.. 2	Ceramics 9, Thesis.. 2	Ceramics 9, Thesis.. 2
16	16	16

## SHORT COURSES

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Short courses of two years each are offered and are intended to meet the needs of persons who are unable to qualify for a course leading to a degree. Applicants must be at least 18 years of age and must give evidence of ability to receive instruction.

While these courses are carefully planned so as to make the best possible use of the time available, it is hoped that no student will rest content with a short course if the requirements for entrance to a four years' course can possibly be met. No subject for which credit is given in a short course can be applied to remove entrance conditions to a full course.

### Short Course in Clay-Working

#### First Year

	Term Hours
Mathematics.....	3
Chemistry 1, General Chemistry, Lecture and Laboratory.....	3
English 1.....	3
Ceramics 1.....	1
Ceramics 2.....	3
Industrial Mechanics 1.....	1
Industrial Mechanics 5.....	1
Physical Training 1.....	1
Ethics 1.....	1
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	17

#### Second Year

Chemistry 2, Qualitative and Quantitative Analysis.....	3
Physics.....	5
Ceramics 3.....	3
Ceramics 4.....	2
Industrial Mechanics 2.....	1½
Industrial Mechanics 4.....	1½
Industrial Mechanics 8.....	1½
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	17½

For particulars of the courses see the description of the courses in Ceramic Engineering.

## Short Course in Normal Art

### First Year

	Studio Hours
Drawing 1, Studio Practice (same as in Applied Art) .....	6
Design 1, Lecture and Studio (same as in Applied Art) .....	6
Modeling 1, Studio Practice.....	6
Public School Drawing 1, Studio Practice.....	6
Mechanical Drawing, Studio Practice.....	6
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	30

### Second Year

Drawing 2, Studio Practice (same as in Applied Art) .....	9
Public School Drawing 2, Studio Practice.....	6
Normal Training, Lecture and Studio.....	9
History of Art, Lecture and Recitations.....	6
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	30

For courses in Ethics, English, Modern Languages, Physics, Mathematics, Geology and Industrial Mechanics, see College Catalogue of Alfred University.

# DEPARTMENTS OF INSTRUCTION

## Description of Courses

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### CERAMICS

Professor Binns

Professor Shaw

1. Lectures on the origin, properties and uses of clays and other ceramic materials. Types of ware and methods of manufacture. Elementary glaze composition.

Laboratory practice in the operations involved in manufacture. The preparation and use of forms, molds and dies. Making saggers, jiggering, pressing and casting pottery. Making brick and tile. The general use of the machine equipment.

First year. One hour lecture and two hours laboratory.  
*One hour.*

Professor Binns.

2. Lectures on the occurrence, classification and identification of clays. The manufacture of all classes of ceramic products. The theory and practice of drying and burning. The compounding of clay mixtures, and the production and use of glazes and colors. The glaze formula.

Laboratory practice in clay testing. The measurement of the physical properties of clays and the compounding of bodies and glazes. Kiln firing.

Second year. Two hours lecture and four hours laboratory.  
*Three hours.*

Professor Binns.

3. Lectures on the winning and preparation of clays. The technology of the ceramic industries. The mineralogical,

chemical and physical changes which take place in clays, bodies and glazes during their preparation, drying and burning. The theory and practice of pyrometry.

Laboratory practice in the production and application of slips, engobes, enamels, glazes and colors. The production, decoration and firing of finished wares.

Third year. Two hours lecture and four hours laboratory.  
*Three hours.*

Professor Shaw.

4. Recitations on the calculations involved in the mixing and blending of ceramic materials in bodies, glazes and colors. The use of analyses. The designing of series for glaze study. Chemical and physical problems in gas volume relations, heat, combustion and the calorific value of fuels.

Fourth year. Two hours recitation. *Two hours.*

Professor Shaw.

5. Lectures on the raw materials, preparation, compounding and manufacture of the various types of glass and enamel. Laboratory practice in the production and testing of various types of glass and enamel, special emphasis being laid on the refractories used in these industries.

Fourth year. Two hours lecture and six hours laboratory.  
*Five hours.*

Professor Shaw.

6. Lectures on the raw materials, preparation, compounding and manufacture of refractories, lime, plaster, and cements. The theory of hydraulicity and the reactions involved in manufacture. Methods of testing.

Laboratory practice in the production and testing of refractories, lime, plaster and cement and the study of their physical properties. The use of the electric furnace in the study of dehydration, lag curves, melting points, eutectics and the viscosity of fused minerals and mineral mixtures.

Fourth year. Two hours lecture and six hours laboratory.  
*Five hours.*

Professor Shaw.

7. Laboratory practice for art students. The production of form by molding. The preparation of glazes for decorative pottery.

Third year. Four hours laboratory. *One hour.*

Professor Binns.

8. Laboratory practice in continuation of course 8. The preparation and use of underglaze colors. Glazes for colors. Colored glazes. The use of the potter's wheel.

Fourth year. Four hours laboratory. *One hour.*

Professor Binns.

9. Thesis.

Fourth year. Six hours laboratory. *Two hours.*

Professor Binns, Professor Shaw.

## **CHEMISTRY**

**Professor Bole**

CHEMISTRY 1. A thorough course in the theory and principles of the science of chemistry, covering Alexander Smith's College Chemistry. It is supposed that students entering this course shall have had high school physics, and preferably high school chemistry. Lecture and recitations, two hours, laboratory four hours. *Four hours.*

2. QUALITATIVE ANALYSIS. The detailed separation of the metals, non-metals and acid radicals. The student is required to apply the theory learned in course 1 and to explain the reason for each reaction. The ionic theory, solubility product, law of concentration, hydrolysis, amphoteric hydroxides, etc., are studied and application made in the separations. Lectures and laboratory work. Textbook, Noyes. Prerequisite, course 1 or its equivalent. *Five hours I. Four-hours II.*

QUANTITATIVE ANALYSIS. A laboratory course of four hours with one lecture. The work embraces the principal methods of gravimetric, volumetric and electro-chemical analysis, the use of the reference works and the chemical

journals. This course gives quantitative application of the laws which are studied qualitatively in course 2. Prerequisites, courses 1 and 2. *Three hours I.*

4. TECHNICAL ANALYSIS. Lectures and laboratory work. The analysis of glass, silicate and carbonate rocks is carried out in detail. The student is given the opportunity to compare different methods of analysis rather than to follow any specified method. Prerequisites, courses 1, 2 and 3. *Three hours. II and III.*

5. FUELS. One hour lecture and eight hours laboratory. The analysis of flue gases and natural gas is carried out in the laboratory. The study of the various fuels is taken up and different samples are analyzed by the student. The student is taught the use of the Orsat and the Hempel apparatus and the Oxygen bomb calorimeter. Heat balances are run on a steam boiler and a ceramic kiln. Prerequisites, courses 1, 2, 3, 4. *Five hours. III.*

6. PHYSICAL CHEMISTRY. Introduction to the concepts of physical chemistry. The first semester is taken up with a detailed study of the quantitative laws governing gases, liquids, solids, and substances in solution. During the second term a study of the phase-rule as applied to the ceramic industries is taken up. During the third term, the study of electro-chemistry and the laws of chemical equilibrium and applications of the same is carried out. Two lectures and two hours laboratory. Prerequisites, courses 1 and 2. *Three hours.*

## APPLIED ART

Miss Binns

Miss Fosdick

Public and private schools are requiring well trained teachers of crafts. Although pottery is the craft in which the school offers exceptional facilities for production, a crafts course for the better understanding of color and design in Applied Art has been added in the junior and senior years. This includes block printing, batik and weaving.

Psychology is required in the second year. The electives allowed in the junior and senior years may be utilized in the department of education as required work for the teacher's professional certificate and in further study in college subjects, or they may be used in additional craft work.

Weaving is included in a course called "Textile Crafts" which may be used as an elective in the junior and senior years. It contains also a more comprehensive study of textiles than is possible in the more limited time of the required courses.

### Drawing

1. Representation: Freehand drawing, perspective, in pencil, colored chalk and charcoal media. Charcoal drawing from the cast. The beginning of color theory, using the Munsell method of notation.

First year. Four hours studio. *One hour.*

2. Nature study and line analysis followed by original composition from nature. Lettering, color theory applied by simple craft problems, drawings in scrubbed water color, and tempera.

Second year. Six hours studio. *Two hours.*

3. Color theory applied to textiles by means of dyeing and block printing. Simple commercial design. A short series of anatomical drawings.

Third year. Four hours studio. *Two hours.*

4. Textile study. Advanced work in value and color in dyeing, block printing, simple batik and weaving.

Fourth year. Four hours studio. *Two hours.*

### Modeling

1. Study of line and form in pottery. Building of pottery. Decoration by means of incising, inlaying, modeling, slip painting, etc. Study of form in sculpture in relief and the round. Modeling of simple ornament from the cast and from original designs. Plaster casting.

First year. Six hours studio. *Two hours.*

2. Continuation of the study of line and form in pottery.

Production of built and wheel made pottery. Development of decoration of pottery with under-glaze color, colored glazes, etc. Modeling from the cast for further study of line and form. Plaster casting.

Second year. Six hours studio. *Two hours.*

3. Production and decoration of pottery. Advanced work in pattern designing for slip painting, under-glaze painting and colored glazes. Kiln management, placing and firing of pottery. Modeling of ornament, animals, etc., for appreciation of form.

Third year. Six hours studio. *Three hours.*

4. Production of distinctive pottery. Advanced work in decoration. Study of fine relations of color and value in the use of colored glazes, under glaze colors, etc. Kiln management, placing and firing of pottery.

Fourth year. Six hours studio. *Three hours.*

## Design

1. The principles of space composition, line analysis and value study; the application of these and of color theory by means of problems including book decoration, surface patterns, etc.

First year. One hour lecture, four hours studio. *Two hours.*

2. The design and drawing courses are closely allied in the second and third years. Design in these two years includes further study of composition and color. Self-expression and appreciation of beauty are developed by means of more advanced problems, including simple commercial design, and color theory is applied in the dyeing and block printing of textiles.

Second and third years. One hour lecture, three hours studio. *Two hours.*

3. Advanced problems in design. Textile study. Advanced work in notan and color in dyeing, block printing, simple batik and weaving.

Fourth year. Four hours studio. *Two hours.*

## **Ceramic Craft**

Production of pottery with special reference to commercial problems. Economy of production, kiln management, etc. The problem of the sales room and private studio. Methods in teaching Ceramics.

Third year. One hour lecture and three hours studio.  
*Two hours.*

## **Composition**

Study of the laws of composition as related to sculpture. The use of the figure in decorative modeling for terra cotta. Designing and making of such objects as flower holders, book ends, etc.

Fourth year. Four hours studio. *Two hours.*

## **History of Art**

Lectures and recitations illustrated with photographs and slides, on the history of art and the appreciation of beauty. The beginnings of art. Egyptian, Greek and Roman art. The arts and crafts of the Middle Ages. The painting and sculpture of the Renaissance. Modern art. Reinach's "History of Art Throughout the Ages," is used as a text-book with supplementary reading and keeping of note-books.

Third year. Two hours recitations. *Two hours.*

Not offered 1919-20. May be expected 1920-21.

## **NORMAL ART**

Miss Binns

Miss Fosdick

### **Drawing**

1. Same as Drawing 1 in Applied Art Course.

First year. Six hours studio.

2. Same as Drawing 2 in Applied Art Course.

Second year. Nine hours studio.

### **Design**

Same as Design 1 in Applied Art Course.

First year. One hour lecture, four hours studio.

## **Modeling**

Elementary modeling from the cast. Modeling from memory, of animals, etc. Story illustration. Sand table work. Simple decorated tiles, pottery, etc.

First year. Six hours studio.

## **Public School Drawing**

1. Exercises in blackboard drawing. Pencil drawing from nature. Time sketches. Pose drawing. Exercises in teaching.

First year. Six hours studio.

2. Exercises in blackboard drawing. Pencil drawing of animals, plants, etc. Illustrative drawing. Memory sketching.

Second year. Six hours studio.

## **Mechanical Drawing**

Geometric problems. Use of instruments. Reading of working drawings. Working drawings from freehand sketches. Perspective sketching from plan. Drawing to scale.

First year. Six hours studio.

## **Normal Training**

Lectures on the theory of teaching, methods of criticism, methods of supervision. Observation of work in local schools. Working out of art problems for the grades and high school. Keeping of note-books and portfolios of work. Exercises in teaching.

Second year. One hour lecture, six hours studio.

## **History of Art**

Same as in Applied Art Course.

Second year. Two hours lecture and recitations.

# DEPARTMENT OF INVESTIGATION AND RESEARCH

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## Clay Testing

Professor Binns

The State School of Ceramics is fitted, and the experts in charge are qualified, for the professional examination and testing of clays for economic purposes. Such clays may be classified under the following heads:

- (a) Kaolin, white burning residual clay.
- (b) Kaolin, white burning, washed for market, used in the manufacture of pottery, porcelain and paper.
- (c) Ball clay, white or cream burning, sedimentary clay of high plasticity, used in pottery manufacture.
- (d) Stone ware clay, gray or cream burning, more or less sandy in character, used in stone ware manufacture.
- (e) Fire clay, buff or white burning, refractory, used for manufacture of fire brick.
- (f) Brick clay including colored clays and shales, used for the manufacture of brick and tile of various qualities and descriptions.

For each of the above classes special tests are necessary, and the charges made are proportionate to the work required.

A report upon each sample will be furnished and must be understood to refer only to the samples submitted unless the experts are instructed to examine the deposit and prepare their own samples, in which case special charges will be made. The report includes physical tests, and chemical analysis where necessary.

Advice as to washing or other preparation of the clay is also given, together with an opinion as to the industry to which the material may be applied.

## **Industrial Problems**

**Professor Binns**

**Professor Shaw**

The problems incidental to the manufacture of clay wares are regularly investigated at the school. Manufacturers are invited to present questions for study. Persons resident within the state are entitled to reasonable services without charge.













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